CITY OF PASCO

Transportation System Master Plan

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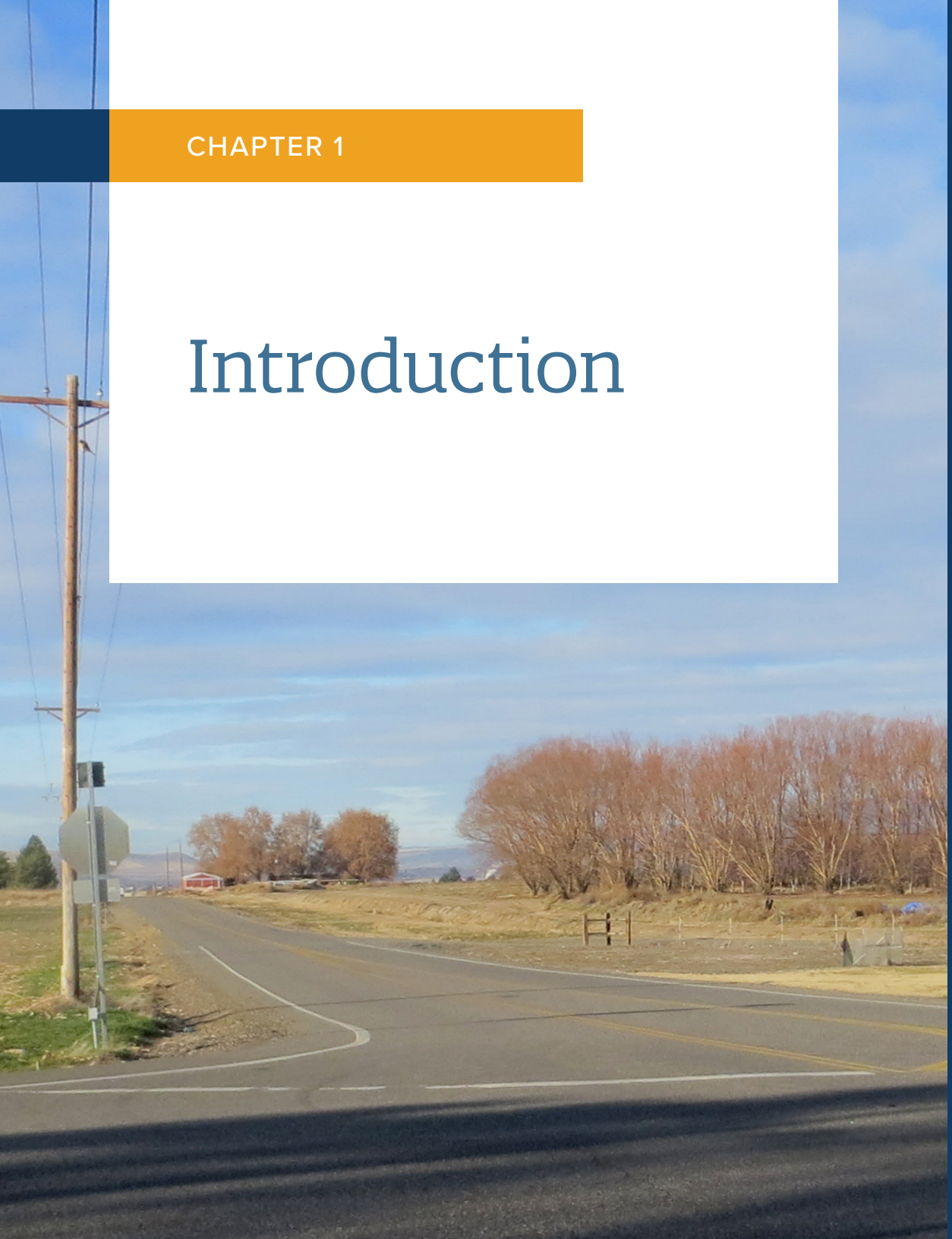


THE CITY OF PASCO HAS PREPARED A MASTER PLAN TO GUIDE DECISIONS AND INVESTMENTS IN THEIR TRANSPORTATION FACILITIES AND SERVICES.

For years, Pasco has been among the fastest growing cities in Washington, and it is expected to add over 40,000 new residents by 2040 when Pasco's population will exceed 120,000, surpassing the neighboring City of Kennewick. Rapid population growth of this scale has a corresponding major impact in transportation demands for a community. The challenge ahead for city leaders is to take steps to address existing system needs identified through this process and to make strategic investments with partner transportation agencies to prepare for substantial growth in the decades to come.

This transportation system master plan lays out a multimodal transportation system to better serve built parts of the community and provides a framework for growth in undeveloped areas. In addition to the specific capital improvement projects for walking, bicycling, and driving, this plan identifies a more robust street design concept for arterial and collector roadways to better serve all travel modes. The plan also includes a priority network for quality bicycle routes, and safety enhancements for mid-block crossings on arterial roadways.

The master plan also recommends new street spacing and accessibility guidelines to be applied for new portions of the community that will be built in the coming years. Significant growth is expected north of Interstate 182 in the Broadmoor Boulevard area, which includes hundreds of acres of developable residential and commercially zoned vacant land. Better street connectivity can balance travel demand across many routes and makes it easier for residents to walk or bike within the neighborhood or to access transit. This approach recognizes that the layout and design of the local transportation system is foundational to neighborhood livability. It better serves the full spectrum of community travel needs which can vary over time based on household size, income, age, physical abilities, and personal preferences.

Plan Purpose

The Pasco Transportation System Master Plan (TSMP) is a guide for future transportation investments to ensure that they align with our community's goals, values, and vision for the future. The TSMP is a key resource for implementing transportation system improvements that address current deficiencies and that serve expected local and regional growth. Transportation planning in Washington is required under the Growth Management Act which governs each city's transportation element of a comprehensive plan. This TSMP will act as a supplement to the transportation element in Pasco's 2018-2038 Comprehensive Plan to further envision Pasco's transportation future.

Under the Growth Management Act, each transportation plan must contain:

- A set of goals, policies, and evaluation criteria that define a vision for a city's transportation future
- An inventory of a city's existing, multimodal transportation system and how well this system currently serves users
- An assessment of future travel demand and the impact of this growth on the existing transportation system
- A review of bicycle and pedestrian needs and opportunities
- An understanding of available funding for transportation system improvements

The Pasco TSMP documents the operational and safety performance of the City's existing and future transportation system and provides strategies that will support growth in and around the community through the year 2040.

The Planning Process

The TSMP project team, which included key city staff members and the consultant team, worked closely with a Technical Advisory Committee (TAC) comprised of local partners to develop and review interim work products and address major issues collaboratively. The TAC roster included representatives from Washington State Department of Transportation (WSDOT), Franklin County, Ben Franklin Transit (BFT), Benton-Franklin Council of Government (BFCG), and Bike Tri-Cities. The TAC met three times to review how the system works today, expected changes with growth to 2040, and proposed transportation improvements recommended within Pasco. During each meeting, initial technical findings were presented and discussed with TAC members to collect feedback on draft concepts and to align long-range plans among the various partner agencies.

In addition, two online public open house events were conducted during the development of the TSMP. Given the restricted conditions of the ongoing COVID pandemic, these events were limited to being conducted online only.

- The first event (June 2020) identified community concerns and issues related to walking, bicycling, and driving within Pasco today through an online survey. Refer to Appendix A for a summary of the public responses to the survey.
- The second online event (May/June 2021) collected public feedback on the proposed projects and programs that the TSMP process identified to address current and expected future transportation system issues.

PERFORMANCE-BASED PLANNING ELEMENTS

The Pasco TSMP differs from prior transportation planning processes in that this update applied a performance-based approach. As described below, that begins with the community's vision for its transportation system, which is distilled into measurable goals and supporting policies. These goals and policies are then used to develop performance measures that are used to identify gaps and challenges in the system today, to evaluate potential projects, and to measure long-term alignment between Pasco's transportation system and the community's vision of this system. The plan process is illustrated in Figure 1, along with the key questions that are considered at each stage of the planning work.

FIGURE 1. PERFORMANCE-BASED PLANNING PROCESS

PASCO'S TRANSPORTATION VISION

The first stage of the planning process involves defining the City's vision for their transportation system and developing goals and policies to guide it. Pasco's comprehensive plan defines a vision for Pasco in 2038 which includes their idealized future transportation system; this concept was used to develop the following vision statement to guide the TSMP.

VISION: THE CITY OF PASCO'S FUTURE TRANSPORTATION SYSTEM IS A SAFE AND BALANCED MULTIMODAL TRANSPORTATION SYSTEM WHICH EQUITABLY SERVES PEDESTRIANS, BICYCLISTS, TRANSIT, FREIGHT, AND DRIVERS. PASCO'S RESIDENTS SHOULD HAVE ACCESS TO LIVABLE NEIGHBORHOODS THROUGH ESTABLISHED PLANNING PRACTICES WHICH PRIORITIZE SYSTEM CONNECTIVITY AND MULTIMODAL STREET DESIGN, INCLUDING A NETWORK OF PARKS, TRAILS, AND BIKEWAYS WHICH CONNECT ALL RESIDENTS TO THE COLUMBIA RIVER. PASCO'S TRANSPORTATION SYSTEM ALSO SUPPORTS REGIONAL ECONOMIC ACTIVITIES, INCLUDING ACCESS TO PASCO'S FREIGHT FACILITIES FOR REGIONAL AGRICULTURE AND OTHER INDUSTRIES, AND SUPPORTS REGIONAL, MULTIMODAL TRANSPORTATION CONNECTIONS IN PASCO.

Transportation Goals and Policies

The following goals and policies were identified for Pasco's TSMP based on the existing transportation goals for Pasco's comprehensive plan and relevant state and regional plan goals.

GOAL #1

TR-1: COORDINATE WITH REGIONAL PARTNERS ON SHARED TRANSPORTATION INVESTMENTS

TR-1-A: Participate in the metropolitan and regional transportation planning efforts of the Benton-Franklin Council of Governments.

TR-1-B: Work with other jurisdictions to plan, fund, and implement multi-jurisdictional projects necessary to meet shared transportation needs including right-of-way acquisition.

TR-1-C: Collaborate with Ben Franklin Transit in programming transit routes, transit stops, and supporting facilities that increase user accessibility during the development process.

TR-1-D: Require transportation and land use planning efforts and policies that meet the needs of the community and the objectives of this plan.

GOAL #2

TR-2: PROVIDE SAFE ACCESS TO TRANSPORTATION FOR ALL SYSTEM USERS

TR-2-A: Minimize traffic conflicts on the arterial street system by implementing access and corridor management best practices.

TR-2-B: Develop a local road safety plan to identify and prioritize safety investments.

TR-2-C: Reduce frequency of fatal and severe injury crashes particularly for vulnerable road users.

TR-2-D: Establish a vision zero plan for transportation safety.

GOAL #3

TR-3: PRESERVE EXISTING ROADS, SIDEWALKS, TRAILS, AND TRANSIT FACILITIES

TR-3-A: Ensure adequate maintenance of the existing facilities.

TR-3-B: Encourage retrofit projects that include beautification on major arterial streets.

GOAL #4

TR-4: PRIORITIZE A CONNECTED AND EFFICIENT TRANSPORTATION SYSTEM FOR DRIVERS

TR-4-A: Adopt and maintain a functional street classification system consistent with regional and state guidance.

TR-4-B: Maintain level-of-service (LOS) “D” on all arterials and collectors and level-of-service (LOS) “C” during the PM peak-hour.

TR-4-C: Provide increased neighborhood travel connections to enhance public safety and provide for transportation disbursement.

TR-4-D: Evaluate, plan, and install traffic control devices and intersection designs to improve travel safety and efficiency.

GOAL #5

TR-5: DEVELOP A TRANSPORTATION SYSTEM THAT SUPPORTS AND ACCOMMODATES THE NEEDS OF BUSINESSES AND VISITORS

TR-5-A: Promote the safe and efficient movement of freight through the city.

TR-5-B: Support the development of facilities that are critical components of the movement of freight.

TR-5-C: Maintain the multimodal passenger terminal.

TR-5-D: Support rail services for passengers, industries, and commerce within the area.

TR-5-E: Support air services for passengers, industries, and commerce within the area in coordination with the Pasco Airport Master Plan.

GOAL #6

TR-6: SUPPORT HEALTHY AND LIVABLE NEIGHBORHOODS IN PASCO

TR-6-A: Develop an interconnected network of streets, trails and other public ways during the development process while preserving neighborhood identity.

TR-6-B: Encourage multimodal street design with traffic calming and safety in consideration of surrounding land uses.

TR-6-C: Require developments to meet the mission of the Pasco Complete Street Ordinance.

TR-6-D: Incorporate design and streetscape into all major arterial and collector streets as they are constructed.

GOAL #7

TR-7: DEVELOP A COMPLETE MULTIMODAL TRANSPORTATION SYSTEM

TR-7-A: Collaborate with Ben Franklin Transit in programming transit routes, transit stops, and supporting facilities that increase user accessibility during the development process.

TR-7-B: Encourage the use of public transportation including ride-sharing and Ben Franklin Transit's Van-Pool program.

TR-7-C: Encourage park-and-ride lots for bicycles and/or automobiles.

TR-7-D: Encourage bicycle and pedestrian travel by providing safe and purposeful bicycle and pedestrian routes.

TR-7-E: Reduce major existing system connectivity gaps for bicyclists and pedestrians to improve multimodal access.

TR-7-F: Develop new transportation performance measures for a multimodal system that could include measures like freight delay.

CHAPTER 2

Pasco Today and Tomorrow

PASCO IS A RAPIDLY GROWING COMMUNITY IN THE TRI-CITIES REGION. THE RAPID GROWTH IS MAKING IT MORE DIFFICULT FOR RESIDENTS TO GET AROUND PASCO AND REQUIRES NEW SOLUTIONS TO MANAGE THE FUTURE GROWTH.

Residents of the Tri-Cities come to Pasco for its regional airport, the Columbia Basin College, the HAPO Center event venue, Downtown, and its regional sports facilities. Pasco serves as a significant freight hub for the Columbia River Basin agricultural areas, including a major rail yard and the Port of Pasco's operations on the Columbia River.

One feature that makes Pasco unique compared to its neighboring cities is its dependence on the four bridges over the Columbia and Snake Rivers for inter-city and regional travel (see Figure 2).

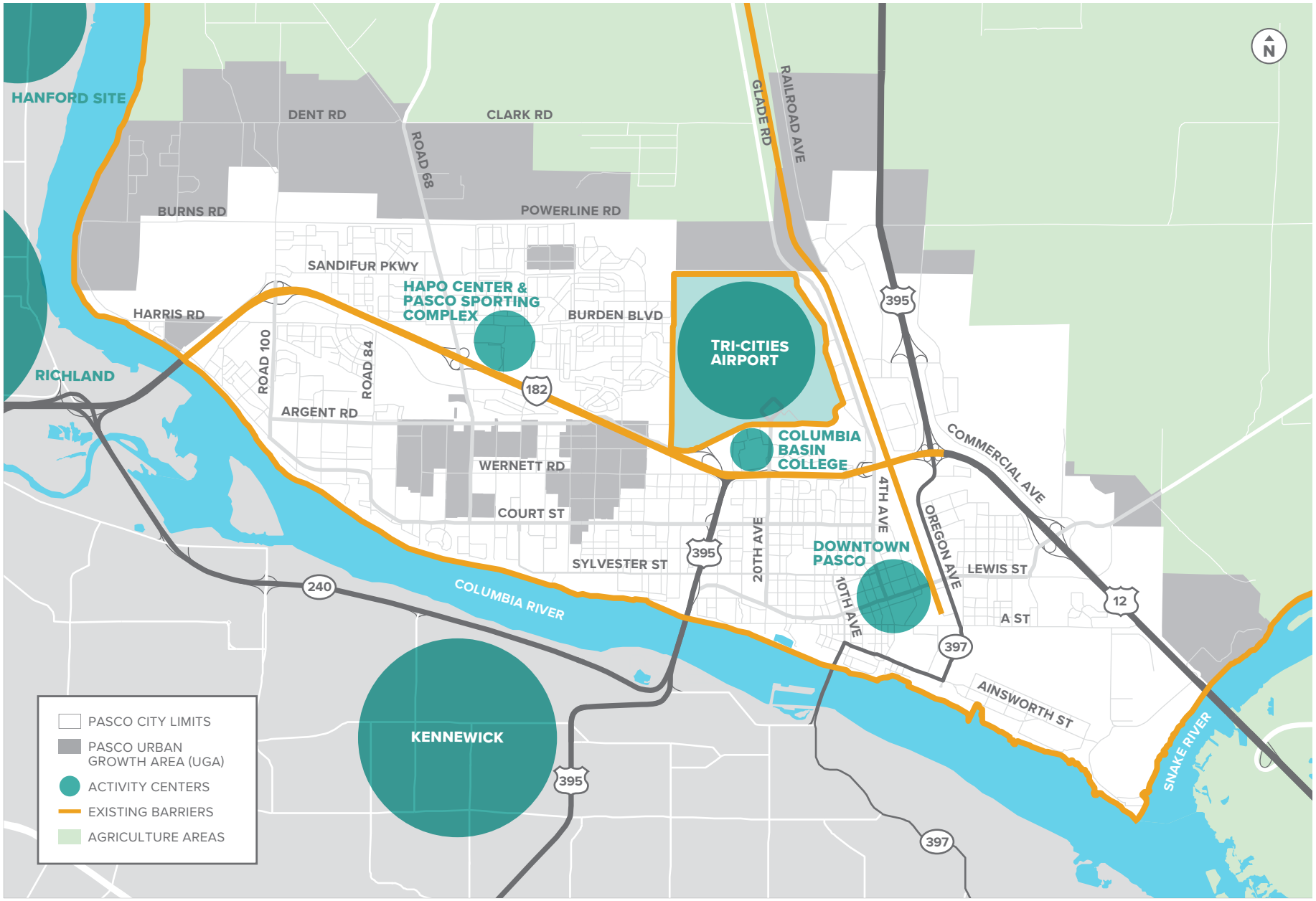


FIGURE 2. TRI-CITIES REGIONAL CONTEXT

About half of the city's residents use the three Columbia River bridges to commute to work, travel to shopping centers, and reach other regional destinations south or west of the river. This is a major constraint for vehicle traffic among the cities. Providing safe, convenient, and reliable travel across these bridges will be an important consideration in developing the Transportation System Master Plan for the City of Pasco.

Growth in Pasco has been rapid over the past 20 years, which has also increased the demand for travel across the river bridges, seen in Figure 4. The bridges with the highest traffic volumes are on Interstate 182 and US 395. They each carry about two to three times the number of cars and trucks as the other two river bridges entering Pasco, which are SR 397 and US 12. As the existing highway facilities become more congested during peak hours of the day, it extends travel times for commuters, freight traffic, and other trips made on these regional highway corridors.

Historic Growth

Pasco has experienced a population boom over the last 20 years during which time the population more than doubled, outpacing the rate of growth in neighboring Kennewick and Richland, and in Washington State overall. In recent years, development has been attracted to the lands north of Interstate 182 and west of Road 68, which offered significant vacant lands for development and convenient commuting access to regional work centers, such as the Hanford Site. Since 2010, Pasco's population has increased by 25 percent (3.1 percent annually), from 60,000 residents to 75,000 residents in 2018 while its Tri-Cities neighbors have grown by 15 percent, as illustrated in Figure 3. By way of comparison. Washington State's population grew by 12 percent during the same period.

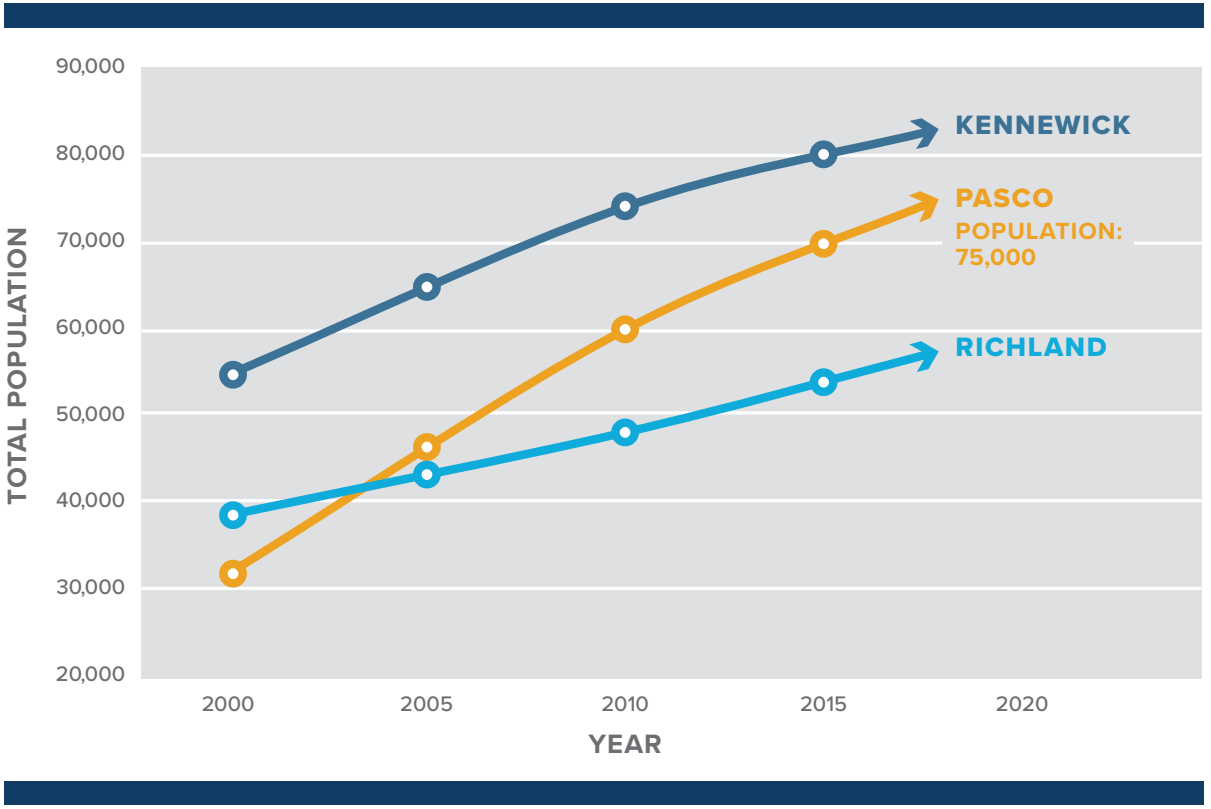


FIGURE 3. HISTORICAL POPULATION GROWTH TRENDS IN TRI-CITIES

The population growth in the Tri-Cities region and Pasco closely mirrors traffic trends on the I-182 and US 395 Columbia River bridges where volumes increased between 15 and 22 percent (2.5 to 3.7 percent annually) between 2012 and 2018 (see Figure 4).

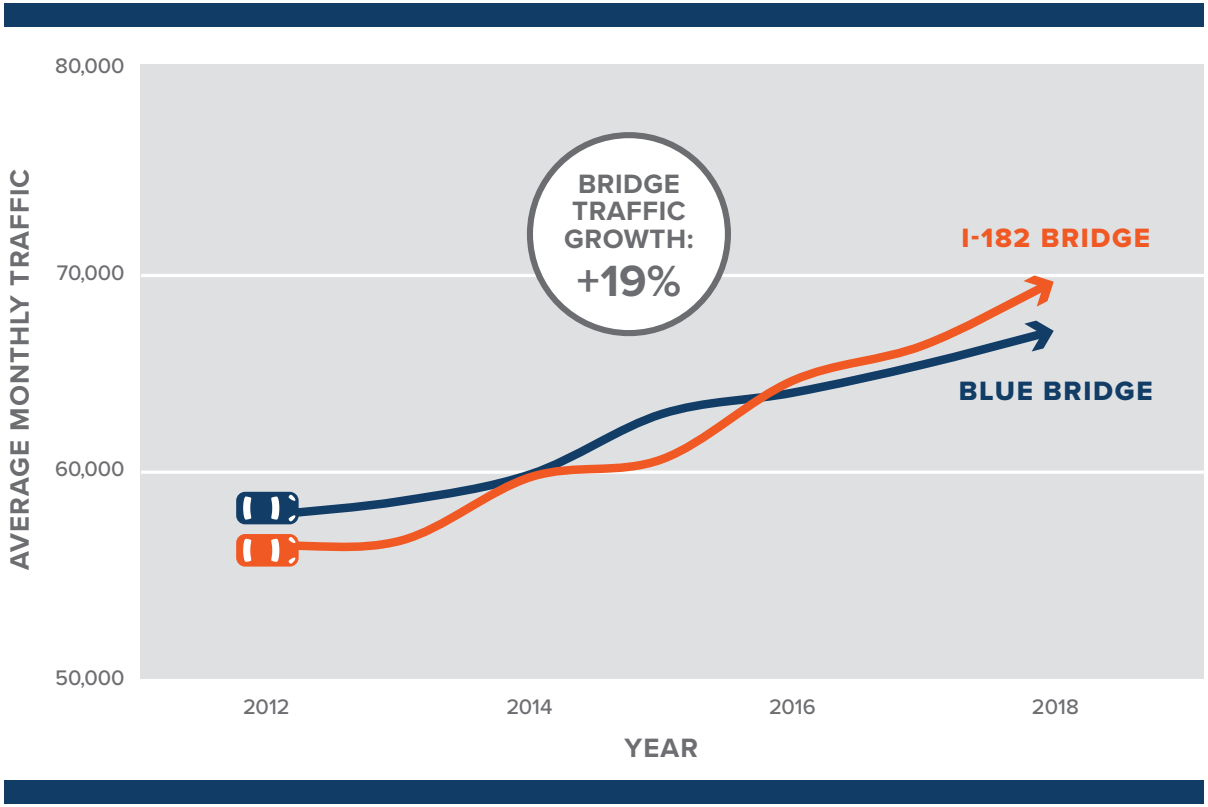


FIGURE 4. TRI-CITIES BRIDGE CROSSING TRAFFIC GROWTH TRENDS

Demographics

Pasco is a majority-minority community with a large Hispanic and Spanish-speaking population. Relative to Washington State, Pasco has a higher proportion of children under age 18 and a lower median household income; 17 percent of residents live in poverty. Within Pasco, over 40 percent of senior citizens are also living with a disability (see Figure 5). Pasco's population characteristics indicate a need for reliable alternative transportation modes to accommodate groups that cannot drive or those individuals who cannot afford to drive. This will be a significant consideration for transportation choices around community equity.

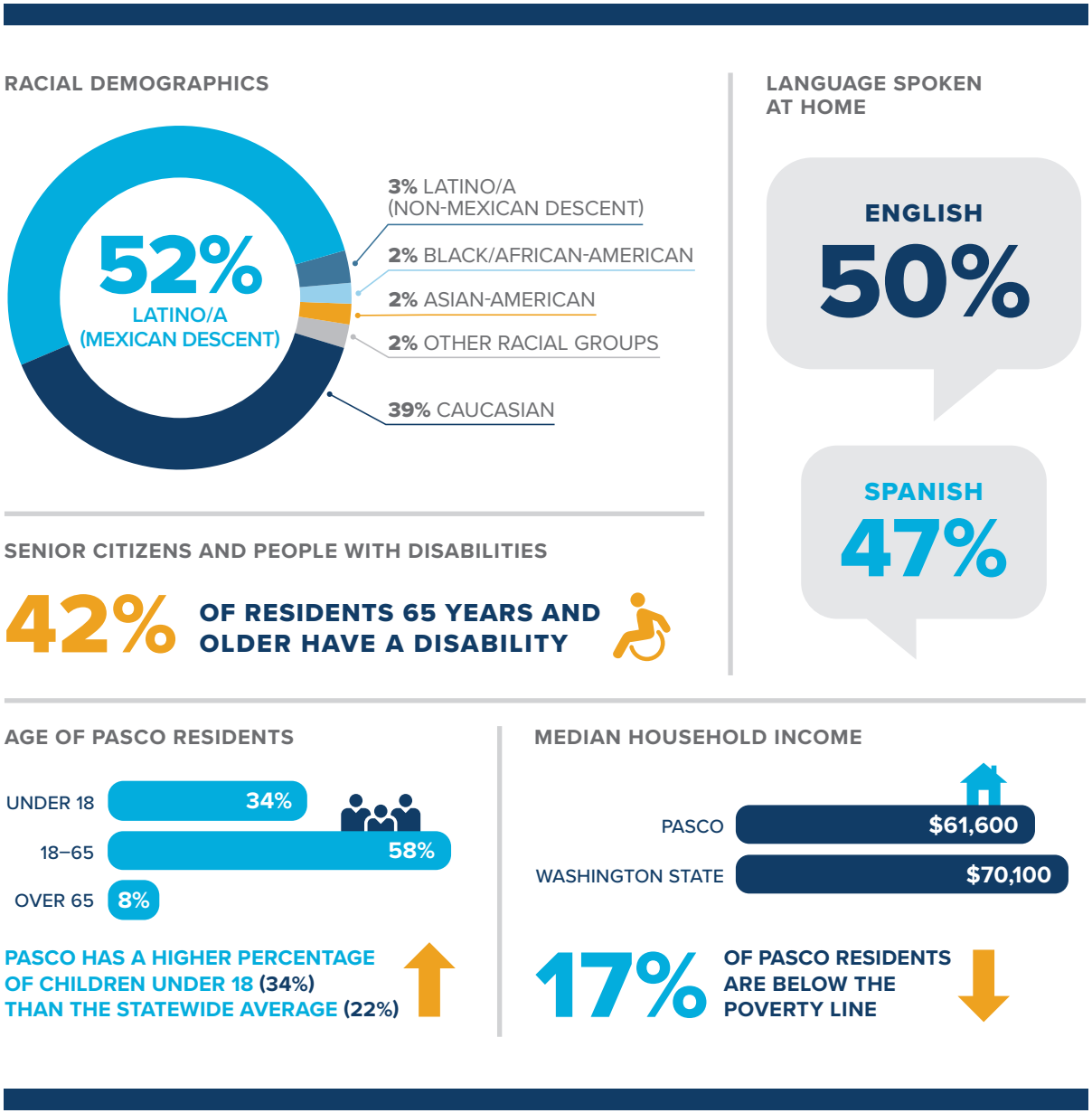


FIGURE 5. PASCO RESIDENTIAL DEMOGRAPHICS

Employment and School Travel Patterns

Based on mobility data[1] for the Tri-Cities region, we found that nearly half (48 percent) of Pasco's employed residents travel to job sites outside of Pasco. Residents that are commuting out of town use one of the four bridges to travel to jobs in Kennewick, Richland, or the Hanford Nuclear Site. As shown in Figure 6, bridge travel patterns mirror these destinations with the highest share (26 percent) on the Lee-Volpentest Bridge (I-182) to access jobs in Richland, Kennewick, or the Hanford site while 16 percent of commute trips use the Pioneer Memorial Bridge (US 395). The other two bridges carry a small share, three percent each.

The other half of the employed Pasco residents work near the downtown area, at commercial establishments along US 395, or in the industrial areas of eastern Pasco. Local job destinations are colored to show where the highest concentrations occur in Figure 6. Other major activity generators are the higher level schools including Chiawana High School, Pasco High School, and the Columbia Basin College.

1 *Employment and school travel patterns analysis conducted using StreetLight data for 2019.*

Freight Transportation

The Port of Pasco maintains and operates several key industrial sites for the Tri-Cities region, including the Tri-Cities Airport, the Big Pasco Industrial Center, and a container barge terminal on the Columbia River. Burlington Northern-Santa Fe Railroad also maintains a major switchyard within Pasco. Freight activity is concentrated within eastern Pasco along the existing rail alignment, US 395, and SR 397/Oregon Avenue adjacent to these major industrial centers.

The composition of vehicle types using city streets was evaluated in the same StreetLight Data set to show which areas had the highest share of trucks. As shown in Figure 7, higher shares of heavy trucks were found to be concentrated east of US 395, with the highest share of truck traffic east of US 12. Bridge crossings were reviewed as well, and it was discovered that the percent of heavy freight over the Columbia and Snake Rivers ranges from six to 20 percent with the highest percent share being on the Snake River Bridge in eastern Pasco, with 20 percent of its 19,000 daily vehicles being freight trucks. By contrast, the western and northern sectors of the city had relatively light truck traffic. The truck volumes north of I-182 and west of US 395 were much lower, typically less than five percent of the total vehicle traffic, while the river bridge shares were between eight and nine percent.

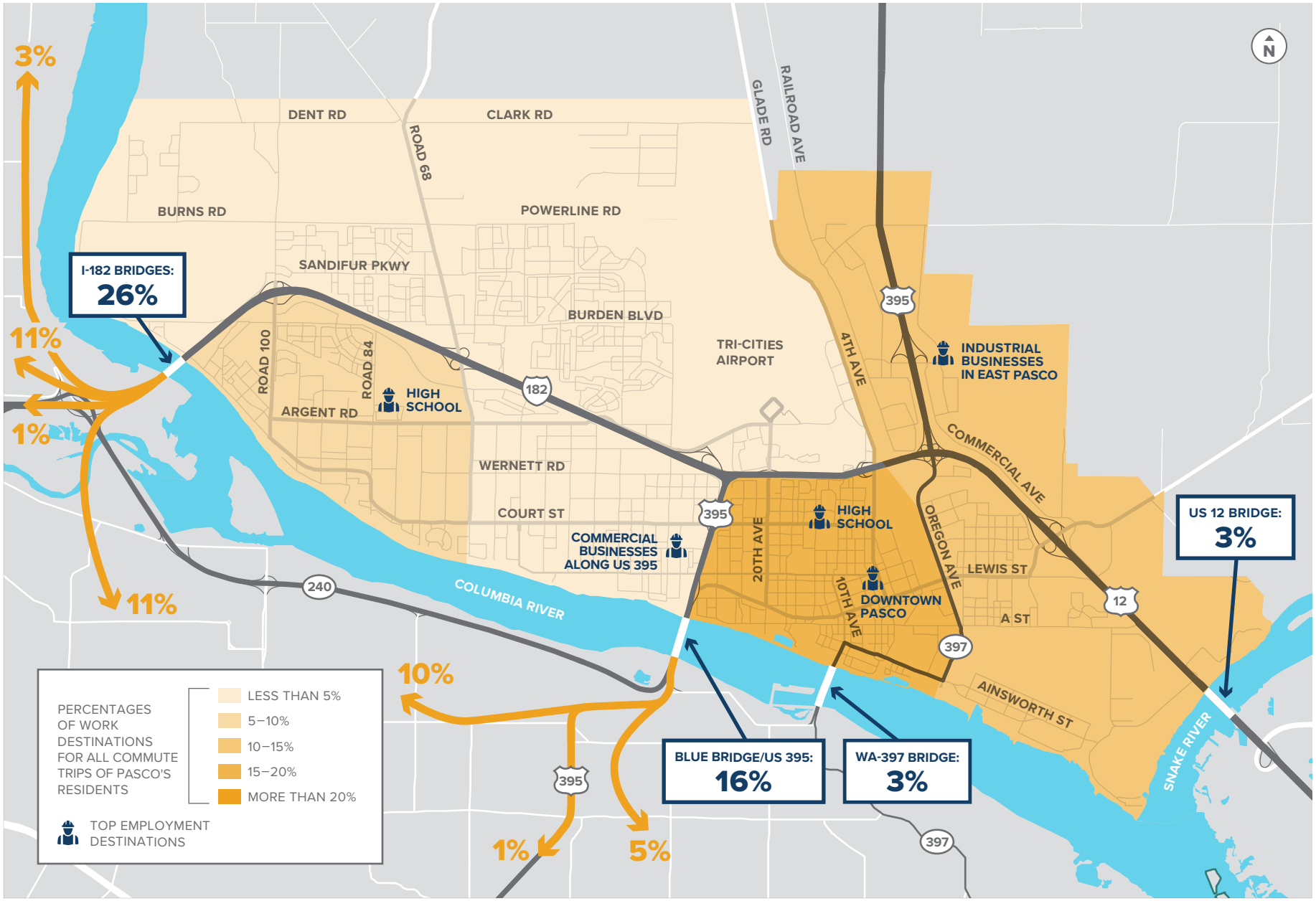


FIGURE 6. EMPLOYMENT TRAVEL PATTERNS TO/FROM PASCO (STREETLIGHT DATA, 2019)

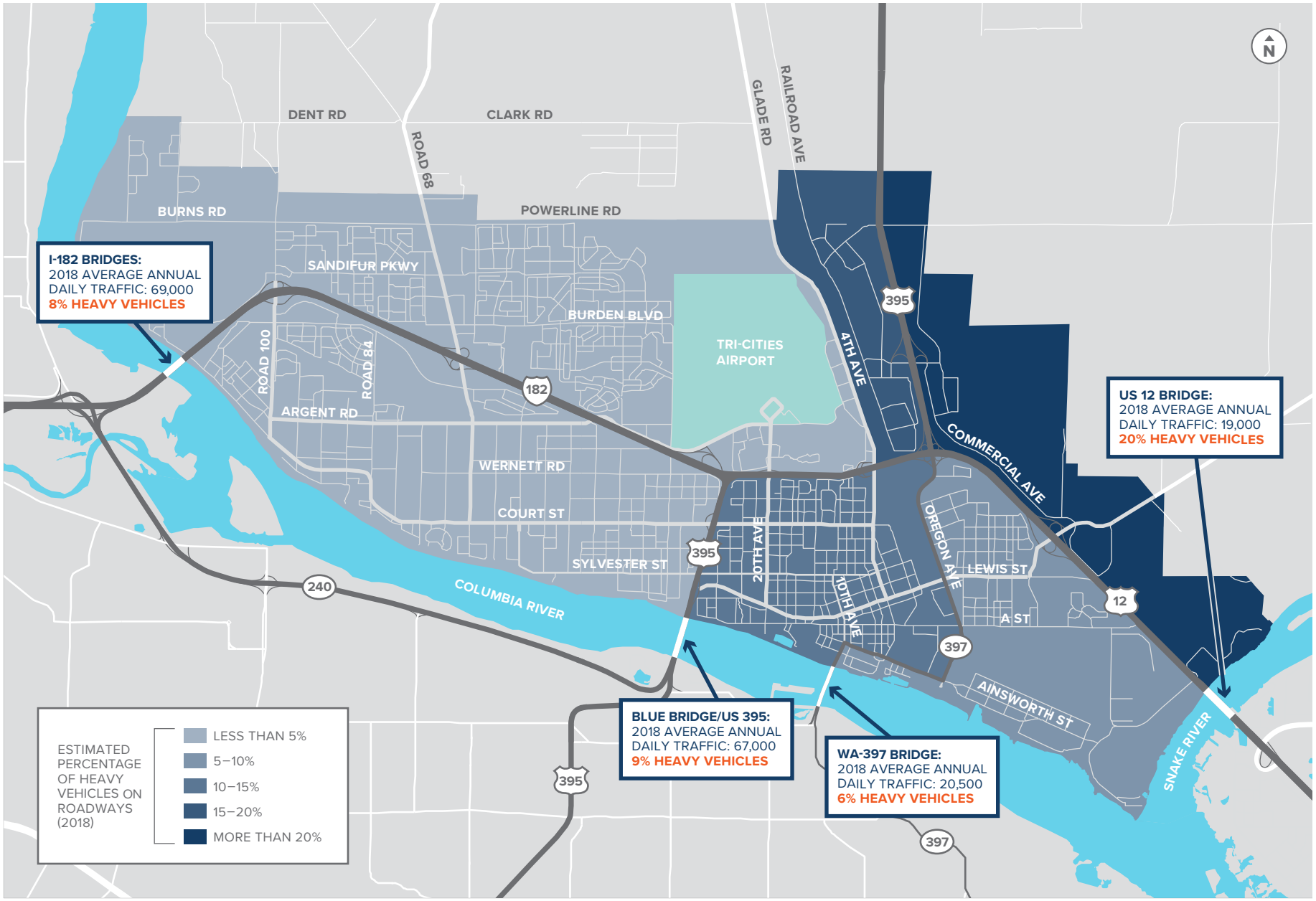


FIGURE 7. FREIGHT ACTIVITY CENTERS WITHIN PASCO (STREETLIGHT DATA, 2019)

Transit Services

The City of Pasco is served by Ben Franklin Transit (BFT) which operates fixed-route bus service, dial-a-ride, vanpool, and other demand responsive services within the Tri-Cities area. These transit options provide service within Pasco along with connections to Kennewick, Richland, and other regional destinations.

FIXED ROUTE SERVICE

BFT operates eight fixed route bus services within Pasco, including the following:

- Route 1: Pasco / Kennewick / Richland
- Route 3: Pasco / Kennewick
- Route 64: Pasco A Street
- Route 65: Pasco Lewis
- Route 66 & Route 67: Pasco Sylvester & Pasco Sandifur
- Route 225: Pasco / Richland
- Route 268: Pasco / Richland

See Figure 8 for these route locations and their existing transit stops.

Weekday service is provided between 6:00 a.m. and 10:00 p.m. although Route 64 and 268 both end service at 8:00 p.m. Service is similar for most routes for Saturday although service does not start until 7:00 a.m.; Route 268 does not provide Saturday service. Most routes operate on 30-minute headways for weekday and Saturday service, but Routes 1 and 3 operate on 15-minute headways, providing more frequent service to Kennewick and Richland from Downtown Pasco. Conversely, Routes 66 and 67 operate on hour headways, providing less frequent service to largely residential areas in western Pasco. Sunday service for Routes 1, 3, 64, and 225 began in August 2021.

BFT operates service for Pasco to and from the 22nd Avenue Transit Center which facilitates transfers between routes. Riders can park at both the 22nd Avenue Transit Center and the HAPO Center. BFT has received two multimodal transit center grants from WSDOT to further develop multimodal hubs in Downtown and West Pasco.

The bus stops within Pasco are indicated on Figure 8. Class 1 is a basic stop, which includes a sign that specifies the route number serving that location. Class 2 also has a bench for waiting riders, and Class 3 is a covered shelter with a bench.

According to the BFT Transit Development Plan, additional bus service is planned to extend coverage along Road 84 south of Argent Road, with continued service along the end of Court Street west of Road 68. The BFT plan also identified locations on the current service routes where stop upgrades are anticipated. Notable proposed changes are upgrades to Class 3 (sheltered) stops along Sandifur Parkway, and along Road 68 in the commercial area. Refer to Figure 9 for more information.

DIAL-A-RIDE SERVICE

Ben Franklin Transit operates Dial-A-Ride service for individuals with a disability between 6:00 a.m. and 10:00 p.m. Monday to Friday and between 7:00 a.m. and 10:00 p.m. on Saturday. There is no Sunday service.

VANPOOL

Vanpool services are also available for commuters travelling to Walla Walla, the Hanford Nuclear Site, and other major employment destinations.

OTHER TRANSIT SERVICES

BFT also offers CONNECT and general demand service which allows residents of Pasco to schedule rides to and from transit stops or other destinations within specific areas. These services make transit more accessible for all residents, especially those who lack convenient access to transit.

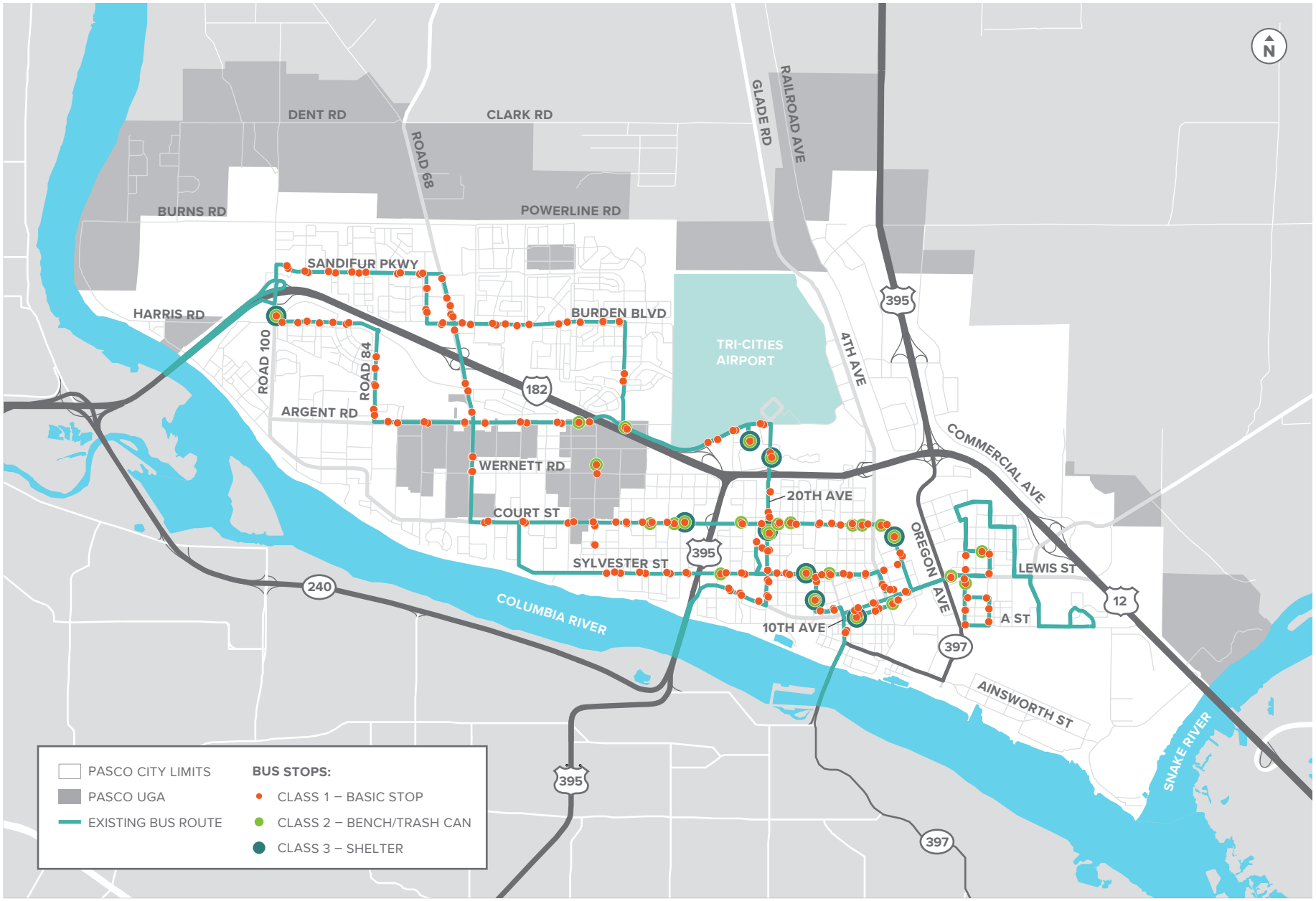


FIGURE 8. EXISTING BEN FRANKLIN TRANSIT SERVICES

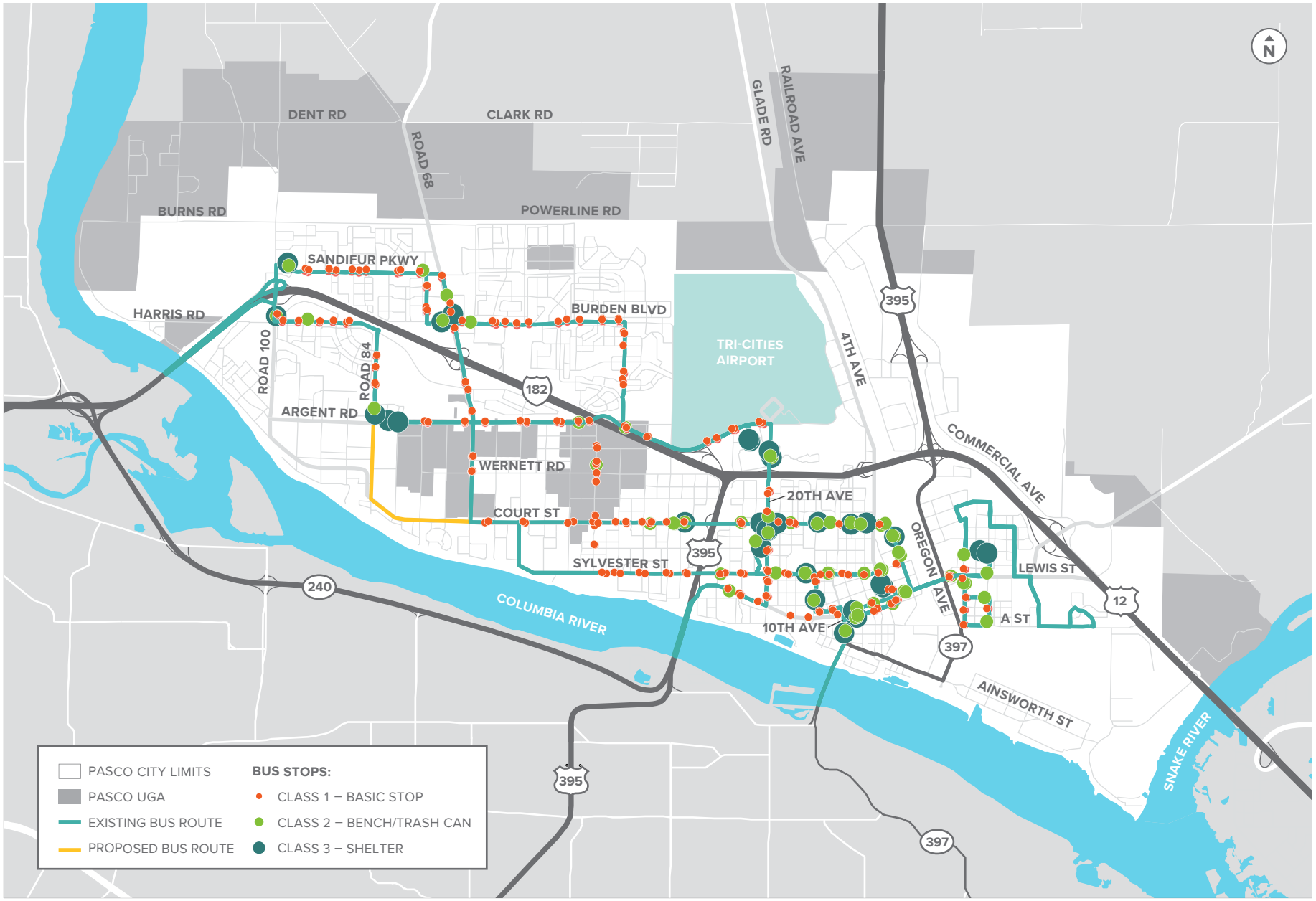


FIGURE 9. PLANNED BEN FRANKLIN STOP UPGRADES AND ROUTE EXTENSIONS

Transportation System Challenges

The transportation system performance was reviewed to understand where the system experiences high levels of congestion during weekday peak travel hours, where higher than expected crash rates occur, and where there are barriers to safe and convenient travel for all users. These issues were observed even with the short-term transportation improvements that are expected for Pasco. Figure 10 shows a compilation of our system performance findings for Pasco. The following sections highlight a few key findings that will be considered during the plan development.

For more details on how the performance assessment was completed and full listing of the findings, please refer to the Technical Memorandum #3 in Appendix B.

CONGESTION

Traffic congestion for motor vehicles is significant today at the two western interchanges (Road 100 and Road 68) on I-182 during typical weekday commute hours. The Road 68 interchange was observed to regularly have excessive vehicle queues blocking access to adjoining intersections and driveways. Whenever traffic has significant delays during peak travel hours, it can impact the safe and convenient traffic operations in those areas.

Fourteen intersections also had significant congestion. A total of 52 locations were monitored around the city, however, the rest of the locations all operated with low to moderate delays during the busiest hours of the day. The list of 14 intersections with concerns are noted in Figure 10. The Road 68 corridor from Sandifur Parkway, across I-182 and ending at Court Street has the highest group of congested locations. Several key locations along Argent Road, Sylvester Street, and Court Street are also noted as being congested on a regular basis.

INTERSECTIONS WITH BOTH HIGH CONGESTION AND HIGH CRASH RATES:

- **ROAD 68 AT BURDEN BOULEVARD**
- **ROAD 68 AT COURT STREET**
- **20TH AVENUE AT COURT STREET**

SAFETY

Traffic safety was reviewed by considering how often crashes occurred at intersections and along roadways around the city along with the type and severity of crashes. Locations with the highest crash rates were flagged and mapped on Figure 10 (a total of five intersections). A crash rate calculation considers both the number and severity of crashes along with the traffic count at a given location. In this way, intersections with different traffic counts can be reasonably compared to each other. We found that several intersections had both high congestion and high crash rates, which occurred at Road 68 at Burden Boulevard, Road 68 at Court Street, and 20th Avenue at Court Street. In addition, four corridors were flagged that had a significantly higher rate of crashes, especially between intersections. Those included Burden Boulevard, Court Street, Sylvester Street, and Lewis Street. Each of these streets are designated arterial roadways that carry higher traffic volumes at increased speeds. Field observations showed that several portions of these high crash corridors had a high density of driveways and side streets which created greater opportunities for conflicts. The combination of higher traffic volumes and speeds on arterial streets along with the absence of a center turn lane, generally results in high crash rates. This was observed on a large section of Sylvester Street and on Court Street east of Road 68.

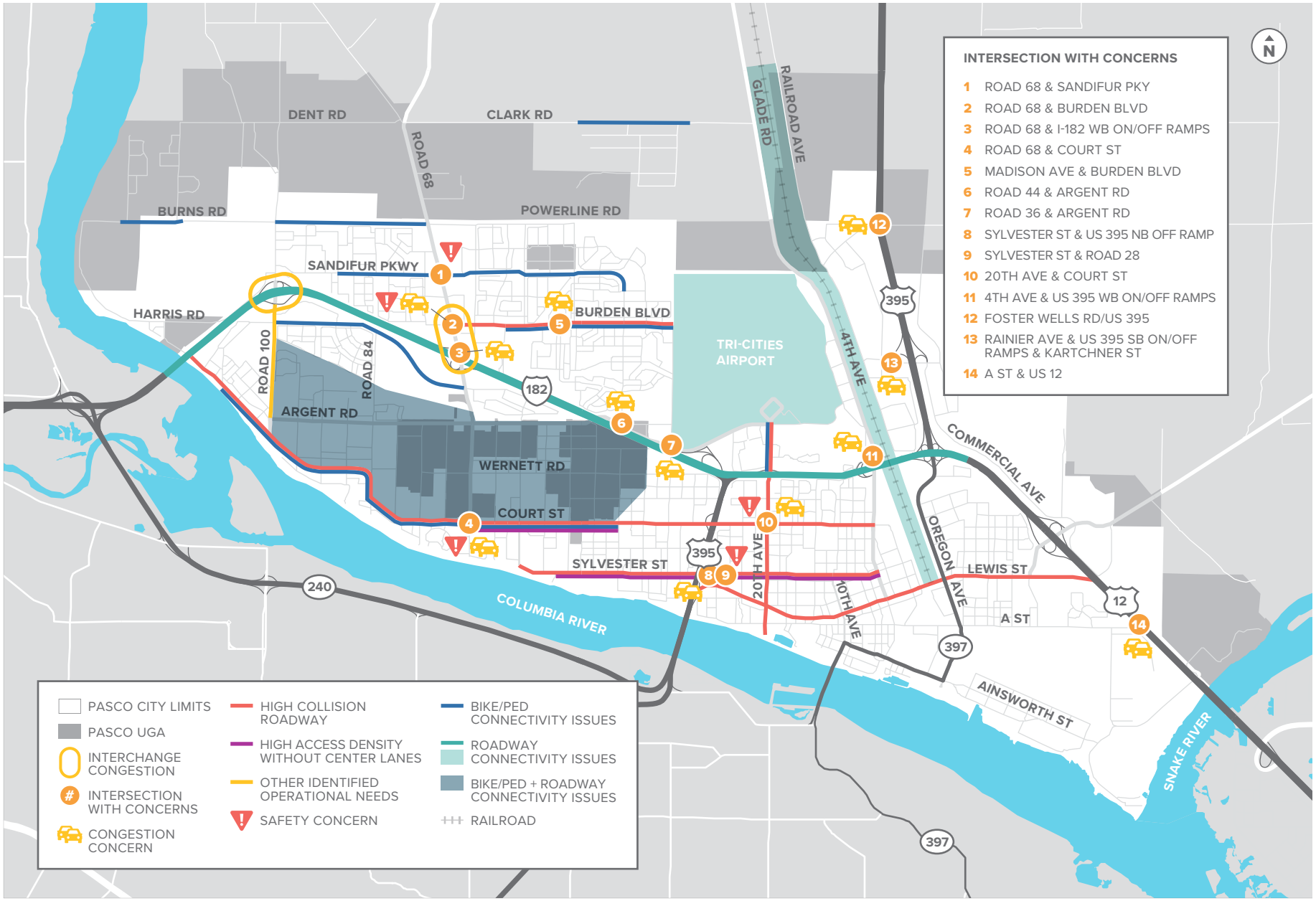


FIGURE 10. PASCO TRANSPORTATION SYSTEM CHALLENGES – TODAY

CONNECTIVITY

Connectivity describes how efficiently, directly, and conveniently a system is designed to serve its intended users. A well-connected multimodal system promotes resiliency, reduces congestion, and enhances equity for local travelers, whether they are driving, accessing transit, bicycling, or walking. For example, a well-connected roadway network provides more routes for drivers to travel between a trip's start and end points which can reduce congestion. Improving system connectivity for drivers can spread traffic more evenly across the existing roadway network, mitigate congestion due to system disruptions, and reduce the overall distance travelled by drivers. Pedestrians, bicyclists, and transit riders also benefit from a well-connected transportation system. Long block lengths and out-of-direction travel can dissuade potential multimodal system users and incur significant costs in both time and safety for existing users who depend on these systems.

A technical review of Pasco's existing transportation system highlighted many arterial or collector corridors and areas without convenient access for pedestrians, vehicles, transit riders, and bicyclists. In addition, public feedback identified dozens of locations where residents felt unsafe or unable to conveniently reach their intended destination.

A few specific examples where connectivity challenges were flagged include the following:

- The I-182 freeway corridor divides Pasco in half and provides very limited opportunities to cross over the freeway. Local freeway interchanges typically have inadequate facilities for walking and biking, which compound the barriers for non-motorized travel.
- The Pasco Airport, and the Pasco rail yards represent major barriers to intra-city travel.
- In portions of unincorporated Franklin County within Pasco (for example, south of I-182), historical rural development has created a roadway network with limited east-west street connections and limited north-south street connections across the Franklin County Irrigation Canal.

In many areas of the city, the transportation system does not support travel for Pasco residents without a car. Notable corridors that require attention are portions of Burns Road, Sandifur Parkway, Burden Boulevard, Court Street and Sylvester Street. For automobile drivers, long block lengths and limited access options tend to increase out-of-direction travel and concentrate higher traffic volumes at the entry points to the neighborhoods. The residents that live adjacent to these entry/exit points experience significantly higher traffic volumes than others in the same neighborhood. These same features also significantly increase the distance that must be travelled by pedestrians or bicyclists to access transit or other destinations, making it more difficult to walk or bike in Pasco.

The current transit service routes generally are within one-quarter to one-half mile as the crow flies, to many of the key destinations and neighborhoods within the existing city limits, as shown in Figure 8, but limited street connectivity in certain areas puts these stops beyond a reasonable walking distance for many residents. Today, the exceptions are in the industrial areas east of US 12, and the edges of the urban area, particularly in the southern portions of Road 100 and westerly end of Argent Road. As noted previously, BFT is planning to extend bus route services along Road 84 south of Argent Road connecting to Court Street. In general, as new development occurs, there is an opportunity for the city to provide better quality and more consistent connection options as part of the new neighborhood designs. This will enable city residents to have safer and more convenient access to transit services and general walking and biking trips. The primary growth area is north of I-182 in the greater Broadmoor Boulevard Area along Road 100. As new streets and neighborhoods are developed, providing direct, safe, and convenient walking and bicycling access to existing and planned transit routes will be important to consider.

Forecasted Growth In Pasco

The Benton Franklin Council of Governments (BFCG) travel demand model was applied to forecast 2040 travel demand within the City of Pasco, and the resulting traffic volumes were evaluated at study intersections by the project team to flag major degradations or changes in traffic operations compared to present day conditions.

Forecasts were developed from the Base Year (2015) and Future No-Build (2040) BFCG regional travel demand model, following the process described in the Traffic Analysis and Forecasting Methodology memo.[2] Key assumptions are highlighted in the following sections along with performance results.

The travel demand forecasting is directly influenced by expected land use growth throughout the Tri-Cities region. For this Transportation System Master Plan, the BFCG model was updated to a 2040 horizon year, by refining the previous 2017–2037 Pasco Comprehensive Plan Update land use to reflect the Broadmoor Master Plan and Urban Growth Area (UGA) expansion that was identified during the Comprehensive Plan Update. The updated 2040 land use significantly changed both the geographic distribution of growth and population and employment projections for the City of Pasco and its UGA. The land use totals are summarized in Table 1.

The 2040 land use assumptions are the catalyst for the forecasted growth and changes of traffic patterns within the City of Pasco. Significant shifts are expected north of I-182 as higher office, retail, and mixed-use growth in the Broadmoor area reduced the number of residents travelling out of Pasco for jobs, goods, and services. Reduced regional travel was also shown to reduce peak demands at interchanges with I-182, compared to historical growth patterns in Pasco where a high share of local residents left the city for employment and shopping purposes. Overall, households are predicted to grow by 81 percent from 2015 (the BFCG model base year) to 2040, while employment is predicted to grow by about 73 percent during the same period.

TABLE 1. PASCO COMPREHENSIVE PLAN URBAN GROWTH AREA

LAND USE TOTAL	2015	2040	PERCENT GROWTH
HOUSEHOLDS	22,500	39,645	81%
POPULATION	70,855	120,275	71%
EMPLOYMENT	19,765	33,895	73%

EXPECTED TRANSPORTATION IMPROVEMENTS

It was assumed that near-term transportation improvements that are reasonably likely to be funded and constructed by the cities of Pasco, Kennewick, Richland, West Richland, and WSDOT will be operational by 2040. These new improvements projects within Pasco include the following. As noted, several of these projects have been recently completed, while others are actively in development or preparing for construction:

- Argent Road Improvements (Road 40 to 20th Avenue)
- Wrigley Drive Extension (Convention Drive to Clemente Lane) - completed
- Chapel Hill Boulevard Extension (Road 84 to Road 68) - completed
- Sandifur Parkway Improvements (Road 68 to Convention Drive)
- Road 68 Widening (I-182 to Argent Road) – in progress
- Burns Road Improvements/Extension (Road 52 to Pasco City Limits)
- Lewis Street Downtown Overpass – in progress

Other projects included in the 2040 BFCG model outside of Pasco are summarized in Transition 2040, the Tri-Cities Metropolitan Area Regional Transportation Plan.[3]

2 *DKS Associates. Traffic Analysis & Forecasting Methodology memo. July, 2020*
3 *Benton-Franklin Council of Governments. Transition 2040, Appendix F. 2018.*

System Conditions After Growth

The system performance with growth in 2040 was re-evaluated to determine if traffic congestion would reach unacceptable levels with the added traffic volumes. We found that sixteen intersections would drop below the agency's target, which is LOS D. This corresponds to significant delay for the average vehicle using that location during commute hours. The locations that are expected to have major congestion issues are mapped in Figure 11 and listed in Table 2. These locations and the roadways serving them were further reviewed to help gauge the scale and nature of system improvements that would adequately serve the higher travel demands, and recommendations are made in the following section.

The traffic operations results showed increased congestion and below standard operating conditions throughout much of the City of Pasco west of US 395 (south), and in and around the industrial employment growth expected to occur along US 395 (north) and US 12. The Road 100 and I-182 interchange ramp terminal intersection failures were particularly concerning, as ramp queues could lead to safety and operations issues on I-182. The operations issues at the US 12 and A Street intersection, the US 395 and Kartchner Street interchange, and the 4th Avenue and I-182 interchange are of particular concern for freight movement, as these are all key gateways into the City of Pasco's industrial growth centers.

LEVEL OF SERVICE (LOS) For motor vehicles, the LOS is an indicator of how much extra time it takes to travel through an intersection during busy travel hours. The LOS scale ranges from little or no delay (LOS A) to extreme delay (LOS F). Pasco's target is LOS D, which is moderate delay. During off-peak hours, delay conditions improve significantly. See the Appendix ## for more information.

TABLE 2. INTERSECTIONS WITH MAJOR CONGESTION BY 2040 (OPERATING AT LOS E OR F)

#	STUDY INTERSECTION	AM PEAK HOUR LEVEL OF SERVICE		PM PEAK HOUR LEVEL OF SERVICE	
		EXISTING	FUTURE NO-BUILD	EXISTING	FUTURE NO-BUILD
1	ROAD 100 & I 182 WB ON RAMP/ I 182 WB ON/OFF RAMP	B	B	A	**E**
2	ROAD 100 & I 182 EB OFF RAMP/ I 182 EB ON RAMP	B	C	B	**F**
8	SYLVESTER ST & US 395 NB OFF RAMP	A/C	A/C	**A/E**	**A/F**
11	4TH AVE & US 395 WB ON/OFF RAMP	A	B	D	**E**
13	US 395 & FOSTER WELLS RD	**A/F**	**C/F**	**B/F**	**C/F**
14	RAINIER AVE/US 395 SB ON/OFF RAMP & KARTCHNER ST	A/C	A/D	**B/F**	**B/F**
15	COMMERCIAL AVE/US 395 NB ON/OFF RAMP & KARTCHNER ST	A/D	**A/E**	A/D	**A/F**
18	HWY 12 & E A ST	A/C	**A/E**	A/C	**A/F**
19	ROAD 68 & BURDEN BLVD	**E**	**E**	**E**	**E**
20	ROAD 100 & DENT RD/EDELMAN RD			A/C	**A/F**
27	ROAD 68 & SANDIFUR PKWY			C	**E**
30	ROAD 68 & COURT ST			A/D	**A/F**
31	ROAD 60 & COURT ST			A/C	**A/F**
32	MADISON AVE & BURDEN BLVD			**A/F**	**A/F**
33	ARGENT RD & RD 44			**A/F**	**B/F**
52	CEDAR AVE & LEWIS ST			A/C	**A/E**

Red text indicates where conditions will exceed accepted LOS limits.

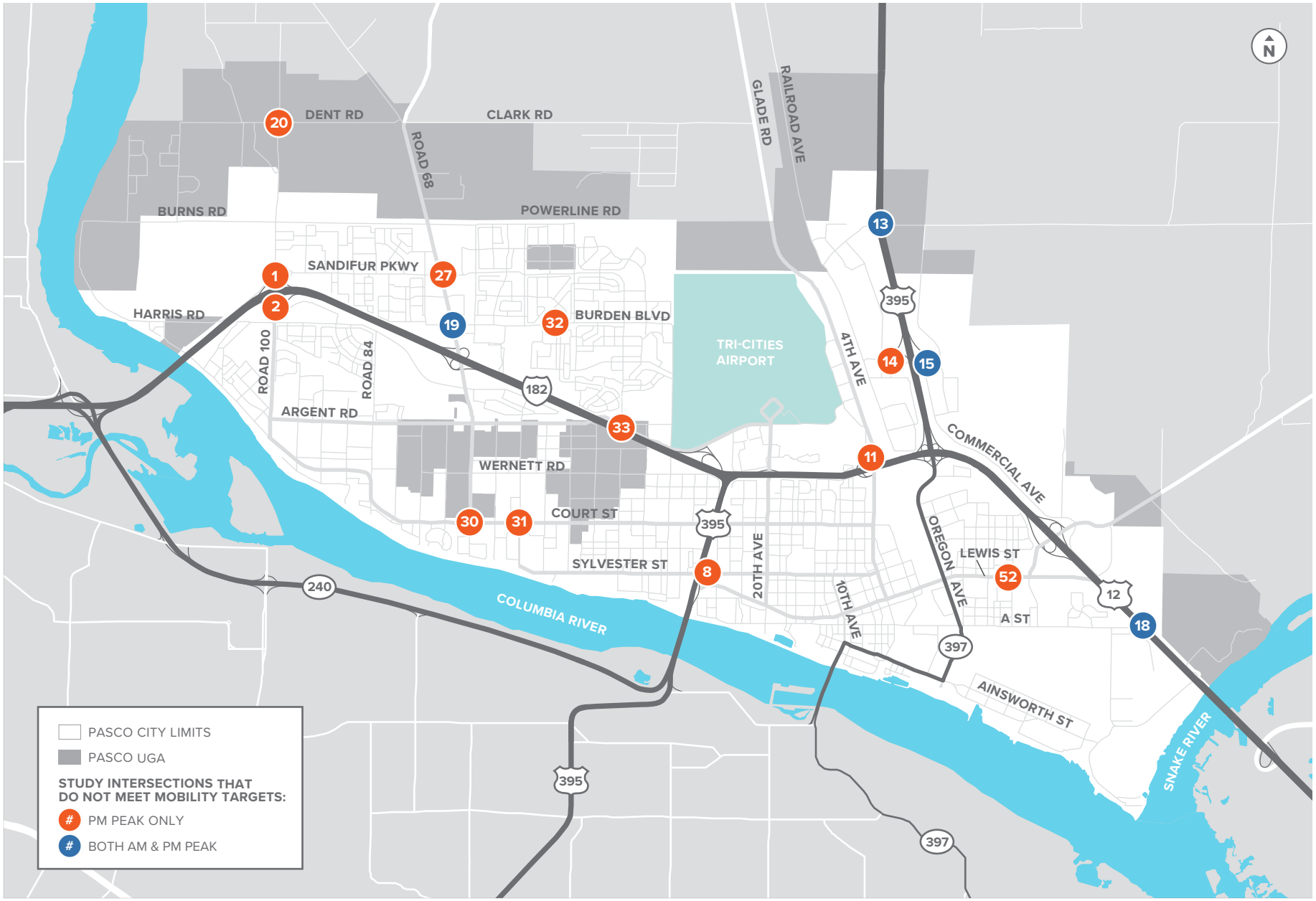


FIGURE 11. INTERSECTIONS WITH MAJOR CONGESTION BY 2040

CHAPTER 3

Recommended Transportation System Improvements

THE RECOMMENDED IMPROVEMENTS TO PASCO'S TRANSPORTATION SYSTEM WILL INCLUDE UPGRADES TO EXISTING STREETS AND INTERSECTIONS, AS WELL AS THE CONSTRUCTION OF NEW ROADWAYS, TO SUPPORT THE MULTIMODAL NEEDS OF THE COMMUNITY.

Not all recommended improvements are required to be in place prior to developing land within the UGA. The need to upgrade the existing streets or construct new ones will be driven by the multimodal access needs of the adjacent properties. The project design elements depicted are identified for the purpose of creating a reasonable cost estimate for planning purposes. The actual design elements for any project are subject to change and will ultimately be determined through a project scoping process.

The recommended improvements are listed by category in Figure 12 (Motor Vehicle System Improvements) and Figure 13 (Bicycle/Pedestrian Projects), with the project IDs corresponding with those in Table 3 through Table 7. Note that the project IDs were created in numerical order, and do not correspond with priority. While the estimated project costs are shown, the responsibility will be shared by the city, Franklin County, WSDOT, and private development, with the cost shares to be determined as applicable.

Motor Vehicle System Improvements

The first major category of system improvements to the motor vehicle system is for at-grade intersection traffic control upgrades and channelization improvements, or for major freeway interchange upgrades and re-configuration projects. As shown in Table 3, many projects are identified to upgrade existing intersections traffic controls to better serve higher traffic volumes with planned growth. This typically includes installing traffic signals or roundabouts to make those locations more efficient and safer under higher usage levels. One of the more complex intersection solutions is on Road 100 at Sandifur Parkway (INT42); this includes extensive additions of dedicated right- and left-turning lanes and upgrades to the existing traffic signal equipment to serve these wider street approaches. The cost estimate for these improvements is $3.6 million.

In addition, there are several freeway interchanges on I-182 that require improvement to the existing off and on ramps serving the local city streets, or they require a major upgrade of the interchange itself to better service long-range multimodal travel demands (INT1, INT24, INT25, INT30). The Road 100 interchange (INT25) improvement project would add a loop off-ramp for eastbound freeway travel bound for northbound Road 100. This will significantly reduce demands on the existing eastbound off-ramp, which queues heavily during peak periods. As noted previously, the existing freeway overcrossings of I-182 have very limited walking and bicycling facilities, and any upgrade to those interchanges would provide improved accommodations for all modes of travel consistent with City of Pasco and WSDOT design standards.

TO BETTER SERVE THE HIGHER TRAFFIC VOLUMES EXPECTED WITH COMMUNITY GROWTH, MANY MOTOR VEHICLE SYSTEM IMPROVEMENTS INCLUDE UPGRADING EXISTING INTERSECTION TRAFFIC CONTROLS.

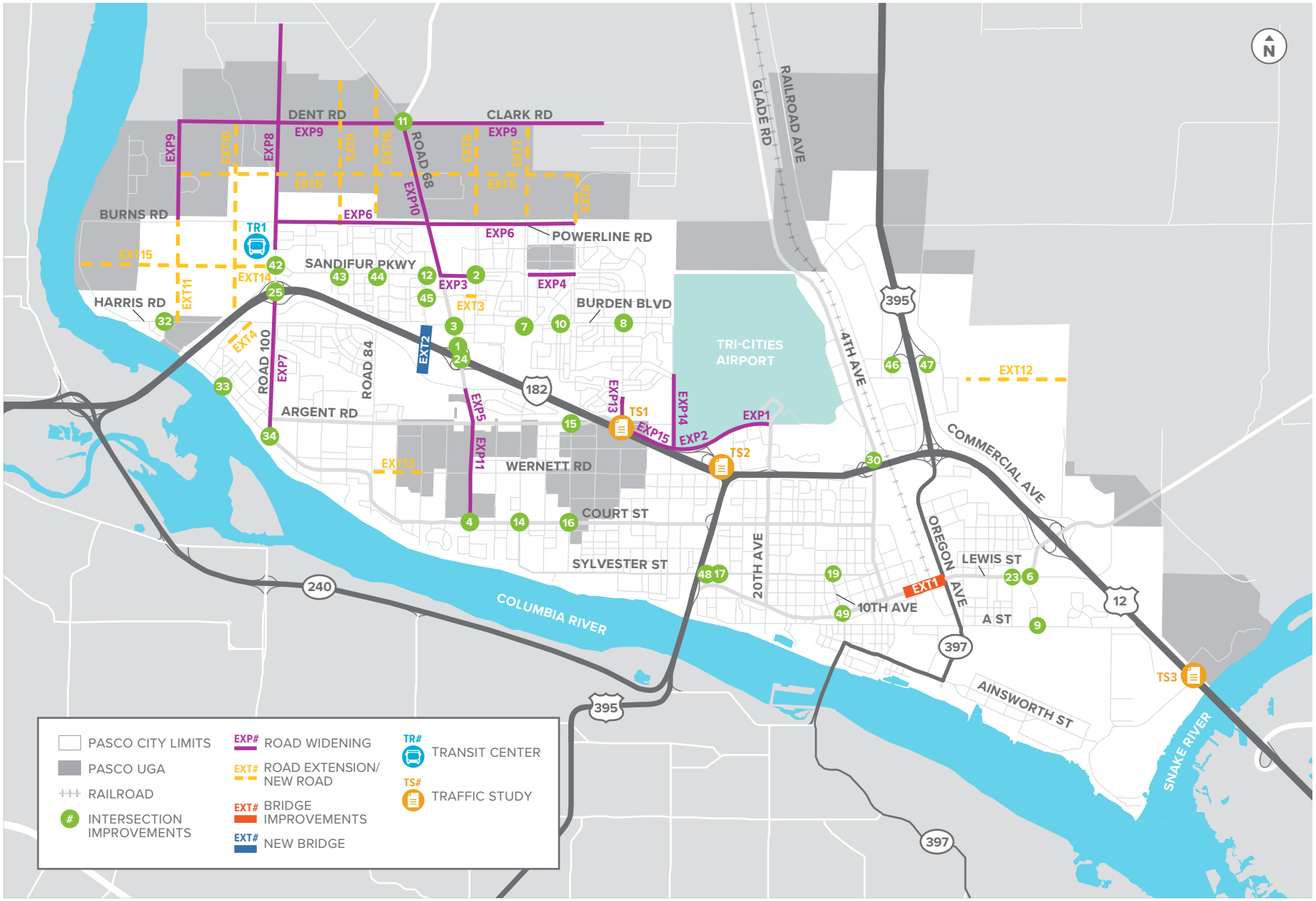


FIGURE 12. MOTOR VEHICLE SYSTEM IMPROVEMENTS

TABLE 3. INTERSECTION IMPROVEMENTS (INT)

ID	NAME	DESCRIPTION	COST
INT1	Road 68/I-182 WB Ramp Terminal Improvements	Expand capacity of westbound ramp terminal	$1,915,000
INT2	Sandifur Parkway/Convention Drive Improvements	Install a traffic signal; restripe Convention Drive to include northbound and southbound left turn pockets	$1,045,000
INT3	Road 68/Burden Boulevard Intersection Improvements	Channelization improvements to reduce queueing on westbound approach and access to I-182	$260,000
INT4	Court Street/Road 68 Intersection Improvements	Construct a roundabout or traffic signal to improve safety, intersection control, and capacity	$2,000,000
INT6	Lewis St/Heritage Ave Intersection Improvements	Install traffic signal	$480,000
INT7	Burden Blvd/Road 60 Intersection Improvements	Install traffic signal	$480,000
INT8	Road 44/Burden Blvd Intersection Improvements	Install traffic signal	$480,000
INT9	Heritage Ave/A St Intersection Improvements	Install traffic signal	$795,000
INT10	Madison Ave/Burden Blvd Intersection Improvements	Install traffic signal	$480,000
INT11	Dent Rd/Road 68/Columbia River Rd/Taylor Flats Rd/ Clark Rd Intersection Improvements	Realign Columbia River Road south to Dent Road and close existing connection to Road 68; construct a 1-lane roundabout at Columbia River Road/ Dent Road; construct a 2-lane four leg roundabout at Dent Road/Clark Road/ Road 68/Taylor Flats Road with eastbound and northbound right turn slip lanes; widen Taylor Flats Road to 4 lanes immediately north of roundabout	$4,865,000
INT12	Sandifur Pkwy/Road 76 Intersection Improvements	Install a traffic signal; remove existing channelized northbound right turn lane and convert to shared northbound through/right turn lane	$480,000
INT14	Court St/Road 60 Intersection Improvements	Construct a traffic signal	$480,000
INT15	Argent Rd/Road 52 Intersection Improvements	Construct turn pockets or traffic signal	$350,000
INT16	Court St/Road 52 Intersection Improvements	Construct turn pockets (included as part of road diet project)	$350,000
INT17	Sylvester St/Road 28 Intersection Improvements	Redesign traffic signal and install a northbound left turn lane	$700,000
INT19	10th Ave/Sylvester St Intersection Improvements	[from Comp Plan – no description available]	$50,000
INT23	Cedar Ave/Lewis St Intersection Improvements	Construct a traffic signal and restripe Lewis Street to three lanes	$350,000

ID	NAME	DESCRIPTION	COST
INT24	I-182/Road 68 Interchange Improvements	Interchange reconstruction, improve on and off capacity for EB and WB traffic, widen bridge structure	$15,850,000
INT25	I-182/Broadmoor Blvd Interchange Improvements	Construct a 1-lane loop ramp from eastbound I-182 to northbound Road 100 within existing right of way; widen westbound approaches at I-182 westbound and eastbound ramp terminals to include dual right turn lanes	$3,300,000
INT30	4th Ave/I-182 WB ramps	Construct a southbound right turn lane at intersection	$220,000
INT32	Court St/Harris Rd	Install a traffic signal	$480,000
INT33	Court St/Road 108	Restripe southbound approach to create a southbound left turn lane	$35,000
INT34	Court St/Road 100	Install a traffic signal	$480,000
INT42	Road 100/Sandifur Parkway Intersection Improvements	Widen approaches as needed to construct new dual northbound left turn lanes, a westbound through lane, a channelized southbound right turn lane, and dual eastbound right turn lanes; widen to add an additional southbound receiving lane on Road 100 between Sandifur Parkway and the old Harris Road intersection	$3,600,000
INT43	Sandifur Parkway/Road 90 Intersection Improvements	Install a traffic signal	$795,000
INT44	Sandifur Parkway/Road 84 Intersection Improvements	Install a traffic signal	$480,000
INT45	Wrigley Drive/Road 76 Intersection Improvements	Install a traffic signal	$480,000
INT46	Rainier Ave/US 395 SB On/Off Ramp & Kartchner St	Install a traffic signal	$480,000
INT47	Commercial Ave/US 395 NB On/Off Ramp & Kartchner St	Install a traffic signal	$480,000
INT48	Sylvester St & US 395 NB Off Ramp	Install a traffic signal	$480,000
INT49	Lewis St/10th Avenue Intersection Improvements	Install an active signal ahead warning sign	$45,000

The next major category of motor vehicle system improvements is roadway extensions, which are newly constructed as development occurs, and overpasses. These projects are generally much larger investments than intersection upgrades because they are building the essential roadway network in the growth areas and addressing system limitations at key bottlenecks around the city.

The first two projects would construct new street overpasses at Lewis Street (EXT1) in downtown, and at Road 76 (EXT2) just west of the Road 68 interchange with I-182. The Lewis Street Overpass replaces the existing railroad underpass facility and began construction in 2021. The Road 76 Overpass project supplements the carrying capacity of the Road 68 overpass to allow local trips to cross the freeway without passing through the ramp intersections and provides quality walking and bicycling options that are not available at Road 68. The other EXT projects are new streets that extend the existing major roadway system to service growth areas.

TABLE 4. NEW ROADWAY EXTENSIONS (EXT)

ID	NAME	EXTENTS	DESCRIPTION	COST
EXT1	Lewis Street Overpass	2nd Avenue to Oregon Avenue	Construct a new railroad overpass between 2nd Avenue and Oregon Avenue to replace existing deteriorating underpass	$32,016,000
EXT2	Road 76 Overpass	Chapel Hill Boulevard to Burden Boulevard	Construct a new 2-lane overpass and roadway to extend Road 76 over I-182 with bicycle and pedestrian facilities; install traffic signal at Road 76/ Burden Boulevard, restripe southbound approach to include a separate left turn pocket, and construct a northbound right turn lane; complete existing roundabout at Road 76/Chapel Hill Boulevard	$30,000,000
EXT3	Wrigley Drive Extension	Clemente Lane to Convention Drive	Extend Wrigley Drive from Clemente Lane to Convention Drive	$960,000
EXT4	Crescent Road	Chapel Hill Boulevard to Road 108	Construct a new 3-lane road in the existing Crescent Road ROW to connect Road 108 and Chapel Hill Boulevard	$3,085,000
EXT5	Future East-West Connection (Deseret Drive)	Dent Road to Road 52	Construct a 3-lane roadway and upgrade existing segments of Deseret Drive; construct two-way stop control intersection at Deseret Drive/Dent Road, Deseret Drive/Future North-South Connection (Halfway between Broadmoor Boulevard and Dent Road), Deseret Drive/Convention Drive, and Deseret Drive/Road 60; install new signals at Road 100/Deseret Drive and Road 68/ Deseret Drive; construct new 1-lane roundabout at Deseret Drive/Road 90 and Deseret Drive/Road 84	$63,640,000
EXT6	Road 52 Extension	Burns Road to UGA	Construct a 3-lane roadway	$24,885,000
EXT7	Road 60 Extension	Burns Road to UGA	Construct a 3-lane roadway; install two-way stop control at Clark Road/Road 60	$24,270,000

ID	NAME	EXTENTS	DESCRIPTION	COST
EXT8	Convention Drive Extension	Burns Road to UGA	Construct a 3-lane roadway; install two-way stop control at Clark Road/ Convention Drive; restripe northbound approach at Burns Road/Convention Drive to include a dedicated left turn lane	$24,330,000
EXT9	Road 90 Extension	Burns Road to UGA	Construct a 3-lane roadway; install a traffic signal at Road 90/Burns Road; construct a 1-lane roundabout at Road 90/Dent Road	$26,795,000
EXT10	Future North-South Connection (Halfway between Broadmoor Boulevard and Dent Road)	Harris Road to Dent Road	Construct a 3-lane roadway; install two-way stop control at Future North-South Connection/Harris Road and Future North-South Connection/Dent Road; install a traffic signal at Future North-South Connection/Burns Road	$28,105,000
EXT11	Dent Road Extension	Burns Road to Harris Road	Construct a 3-lane roadway; install a traffic signal at Dent Road/Burns Road	$14,505,000
EXT12	Hillsboro Rd Extension	King Avenue to UGA	New road from east of King Ave to UGA	$34,940,000
EXT13	Wernett Rd Extension	Road 76 to Road 84	New road from Rd 76 to Road 84	$6,075,000
EXT14	Sandifur Parkway Extension - Phase 1	Road 100 to Future North-South Connection (Between Road 100 and Dent Road)	Construct a 5-lane roadway; realign Harris Road to Sandifur Parkway Extension as 2-lane road and close the existing Harris Road/Road 100 intersection; construct a 2-lane roundabout at Sandifur Parkway Extension/Harris Road and a 1-lane roundabout at Sandifur Parkway/Future North-South Connection (Between Road 100 and Dent Road) with a westbound right turn slip lane	$12,140,000
EXT15	Sandifur Parkway Extension - Phase 2	Future North-South Connection (Between Road 100 and Dent Road) and Shoreline	Construct a 3-lane roadway; construct a 1-lane roundabout at Sandifur Parkway/ Dent Road; install two-way stop control at Sandifur Parkway/Shoreline	$23,740,000
EXT16	Road 84 Extension	Burns Road to UGA	Construct a 3-lane roadway; install a traffic signal at Road 84/Burns Road; construct a 1-lane roundabout at Road 84/Dent Road	$25,585,000

A series of focused traffic studies (TS1, TS2, and TS3) was also identified to develop conceptual plans for solutions at major intersections and freeway interchanges to better understand trade-offs and cost efficiencies. In addition, two safety studies (TS4 and TS5) were identified to help the City leverage access to grant funding for local safety improvements. The master plan also shows a potential transit park and ride lot in the general Broadmoor Road area. Further study is required to fully understand the investment required for improvements to support the park-and-ride lot.

TABLE 5. TRAFFIC STUDIES AND TRANSIT AMENITIES (TS & TR)

ID	NAME	DESCRIPTION	COST
TS1	Study Road 44/Argent Road Intersection	Study Road 44/Argent Road Intersection	$65,000
TS2	Traffic Analysis for I-182/US 395 Interchange	Traffic Analysis for I-182/US 395 Interchange	$265,000
TS3	Traffic Analysis for US 12/Tank Farm Road	Traffic Analysis for US 12/Tank Farm Road	$250,000
TS4	Intersection Safety Implementation Plan	Develop a program to analyze intersection safety needs, including identification of automated enforcement locations and identifying projects for safety grants	$80,000
TS5	Local Roads Safety Plan (LRSP)	Develop an LRSP in even-numbered years (2022 and following) to gain eligibility for Highway Safety Improvement Program (HSIP) grant funding	$60,000
TR1	Broadmoor Park and Ride Location	Construct a park-and-ride facility in the Broadmoor Area	TBD

The next category of motor vehicle improvements is expansions to the existing system, which generally add more motor vehicle travel lanes to serve 2040 traffic conditions consistent with the mobility targets in place by the City and its local partners (WSDOT and Franklin County). Some expansion projects were also identified as key components to complete a comprehensive bicycle network for Pasco. These projects are included on Figure 13. Several of these roadway widening projects also identify supporting intersection and traffic control upgrades based on initial performance studies done through the TSMP. Further traffic engineering evaluation will be required at the time of improvement design to fully understand the geometric requirements associated with intersection improvements, such as the length of the suggested dedicated turn lanes, at each location.

TABLE 6. ROADWAY WIDENING PROJECTS (EXP)

ID	NAME	EXTENTS	DESCRIPTION	COST
EXP1	Argent Road Improvements - Phase 1	20th Avenue to Varney/Saraceno	Widen to 5 lanes with intersection improvements	$2,015,000
EXP2	Argent Road Improvements - Phase 2	Varney/Saraceno to Road 40	Widen to 5 lanes with intersection improvements; install a traffic signal or roundabout at Road 36/Argent	$8,150,000
EXP3	Sandifur Parkway Improvements	Convention Drive to Road 68	Widen to 5 lanes; construct a westbound right turn lane at Road 68/ Sandifur Parkway	$2,265,000
EXP4	Sandifur Parkway Improvements	Road 60 to Road 52	Widen to 3 lanes; restripe westbound approach to Road 52 to include a shared through/right lane and a dedicated left turn pocket; restripe southbound and eastbound approaches to Road 60 to include dedicated left turn lanes	$3,505,000
EXP5	Road 68 Improvements	I-182 Eastbound Ramp Terminal to Argent Road	Widen to 5 lanes; construct a southbound right turn lane at Road 68/Chapel Hill Boulevard	$307,628
EXP6	Burns Road Improvements	Road 100 to Road 44	Widen to 3 lanes; construct new 3-lane roadway between Road 68 and Rio Grande Lane; install all-way stop control at Road 52/Burns Road intersection; install a traffic signal at Burns Road/Road 68	$13,804,000
EXP7	Road 100 Improvements	I-182 Eastbound Ramp Terminal to Court Street	Widen to 3 lanes as needed; convert existing right turn pockets and acceleration lanes to a continuous through travel lane	$7,905,000
EXP8	Broadmoor Blvd Widening	I-182 Westbound Ramp Terminal to Dent Road	Widen to 5 lanes between I-182 Westbound Ramp Terminal and Burns Road; widen to 3 lanes between Burns Road and Dent Road; install traffic signal at Broadmoor Boulevard/Burns Road and widen eastbound approach to include dedicated left and right turn lanes; install traffic signal at Broadmoor Boulevard/Dent Road	$8,035,000
EXP9	Clark Road/Dent Road Improvements	Burns Road to Road 52	Widen to 3 lanes	$43,225,000

ID	NAME	EXTENTS	DESCRIPTION	COST
EXP10	Road 68 Improvements	Sandifur Parkway to Clark Road	Widen to 5 lanes	$13,085,000
EXP11	Road 68 Improvements	Court Street to Argent Road	Extend 5-lane section immediately south of Argent Road; convert existing southbound right turn lane to a shared southbound through/right turn lane	$9,740,000
EXP13	Road 44 Improvements	Madison Avenue to Argent Road	Widen to 3 lanes; install a traffic signal at Road 44/Argent Road intersection	$1,225,000
EXP14	Road 36 Improvements	Desert Plateau Drive to Argent Road	Widen to 3 lanes	$3,345,000
EXP15	Argent Road Improvements - Phase 3	Road 40 to Road 44	Widen to 5 lanes	$600,000
EXP23	Burns Road	Shoreline to Road 100	Widen to complete a residential minor arterial cross section	$13,795,000
EXP26	Court Street	Harris Road to Road 100	Widen to complete a residential minor arterial cross section	$9,920,000
EXP33	Road 84	Burns Road to Sandifur Parkway	Widen to complete a residential collector cross section	$25,000
EXP37	Road 76	Sandifur Parkway to Burden Boulevard	Widen to complete a commercial collector cross section	$1,925,000
EXP38	Wrigley Drive	Road 76 to Clemente Lane	Widen to complete a commercial neighborhood collector cross section	$560,000
EXP46	Hudson Drive	Road 84 to Okanogan Lane	Widen to complete a residential neighborhood collector cross section	$825,000
EXP47	Okanogan Lane	Hudson Drive to Chehalis Drive	Widen to complete a residential neighborhood collector cross section	$250,000
EXP48	Chehalis Drive	Okanogan Lane to Three Rivers Drive	Widen to complete a residential neighborhood collector cross section	$490,000
EXP49	Three Rivers Drive	Chehalis Drive to Road 68	Widen to complete a residential neighborhood collector cross section	$1,170,000
EXP53	Argent Road	Road 52 to Road 44	Widen to complete a residential minor arterial cross section	$3,840,000
EXP57	Road 76	Argent Road to Court Street	Widen to complete a residential neighborhood collector cross section	$5,520,000

ID	NAME	EXTENTS	DESCRIPTION	COST
EXP58	Court Street	Road 100 to Road 84	Widen to complete a residential 3-lane principal arterial cross section	$15,315,000
EXP74	Wrigley Drive	Road 68 Place to Roosevelt Drive	Widen to complete a residential neighborhood collector cross section	$4,350,000
EXP75	Roosevelt Drive	Wrigley Drive to Madison Avenue	Widen to complete a residential neighborhood collector cross section	$225,000
EXP76	Madison Avenue	Roosevelt Drive to Burden Boulevard	Widen to complete a residential neighborhood collector cross section	$140,000
EXP77	Madison Avenue	Burden Boulevard to Road 44	Widen to complete a residential neighborhood collector cross section	$50,000
EXP79	Road 60	Burns Road to Burden Boulevard	Widen to complete a residential collector cross section	$465,000
EXP82	Burden Boulevard	Road 60 to Road 36	Widen to complete a residential minor arterial cross section	$5,860,000
EXP89	Road 60	Court Street to Sylvester Street	Widen to complete a residential collector cross section	$3,305,000
EXP93	Sylvester Street	Road 60 To Road 54	Widen to complete a residential collector cross section	$2,125,000
EXP102	A Street	20th Avenue to Heritage Boulevard	Widen to complete an industrial minor arterial	$6,990,000
EXP103	A Street	Heritage Boulevard to US 12	Widen to complete an industrial minor arterial	$4,695,000
EXP111	10th Avenue	Lewis Street to Sylvester Street	Widen to complete a mixed use minor arterial cross section	$2,895,000
EXP112	10th Avenue	Ainsworth Street to Lewis Street	Widen to complete an industrial minor arterial cross section	$150,000
EXP115	4th Avenue	Ainsworth Street to Columbia Street	Widen to complete an industrial minor arterial cross section	$3,480,000
EXP126	Elm Avenue	Broadway Street to A Street	Widen to complete a residential neighborhood collector cross section	$445,000

Bicycle and Pedestrian System Improvements

The recommended bicycle and pedestrian system improvements are listed by category in Figure 13 (Bike/Pedestrian Projects), with the project IDs corresponding with those in Table 7. Note that the project IDs were created in numerical order, and do not correspond with priority. While the estimated project costs are shown, the responsibility will be shared by the City, Franklin County, WSDOT, and private development, with the cost shares to be determined as applicable.

In addition to the specific projects targeted for bicycle and pedestrian users (Table 7), Figure 13 illustrates motor vehicle projects that have bike and pedestrian elements, which were already listed in the previous sections' project tables. The compilation of dedicated bike/ped and other projects illustrates the citywide bicycling and walking network that will be in place once these improvements have been completed.

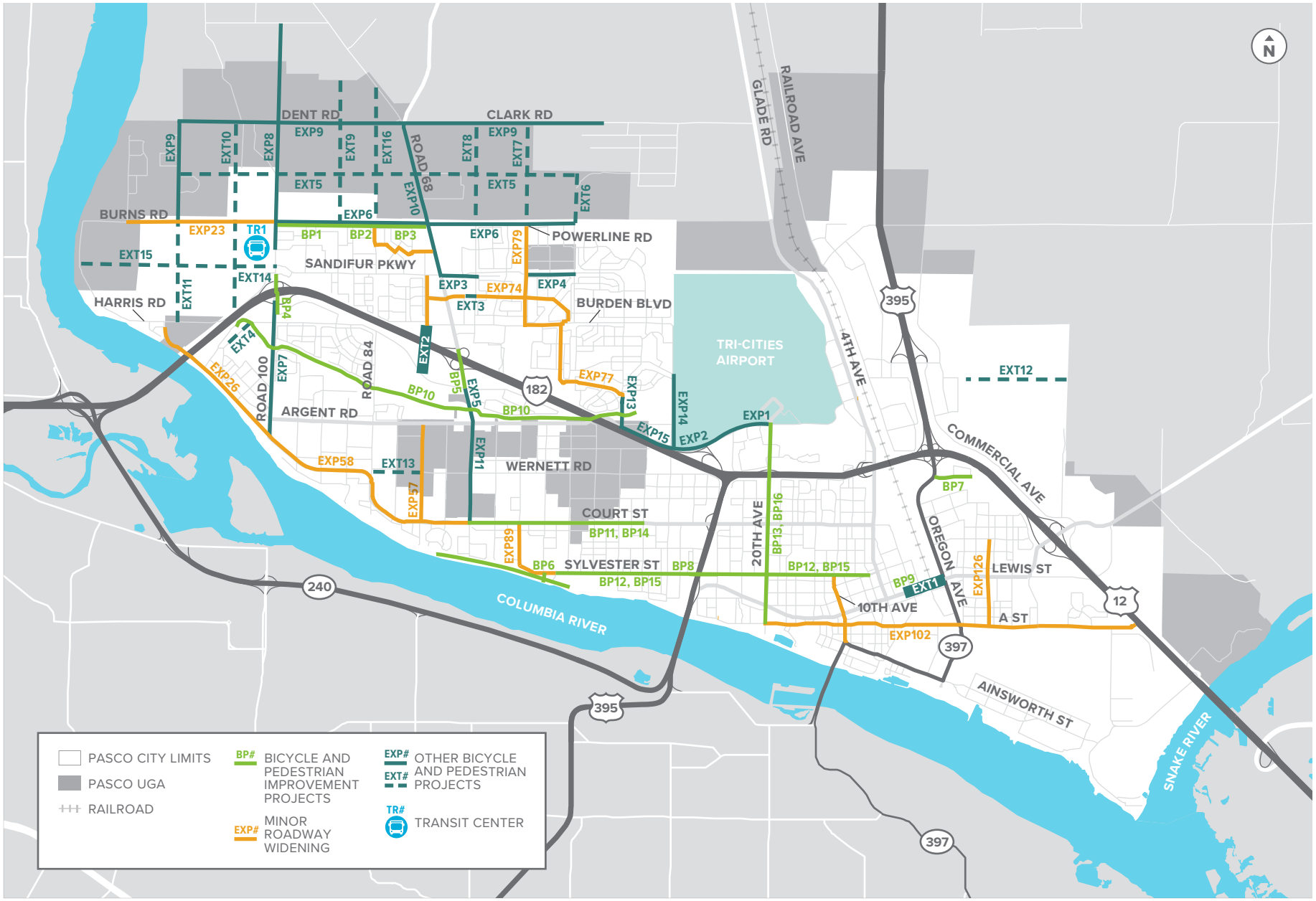


FIGURE 13. BICYCLE AND PEDESTRIAN PROJECTS

TABLE 7. BICYCLE AND PEDESTRIAN PROJECTS (BP)

ID	NAME	EXTENTS	DESCRIPTION	COST
BP1	Burns Road Pedestrian/ Bicycle Pathway Phase 1	Road 100 to Road 90	12-foot-wide Pedestrian/Bicycle pathway from Road 100 to Road 90	$775,000
BP2	Burns Road Pedestrian/ Bicycle Pathway Phase 2	Road 90 to Road 84	12-foot-wide Pedestrian/Bicycle pathway from Road 90 to Road 84	$455,000
BP3	Burns Road Pedestrian/ Bicycle Pathway Phase 3	Road 84 to Road 68	12-foot-wide Pedestrian/Bicycle pathway from Road 84 to Road 68	$650,000
BP4	Pedestrian/Bicycle Access Road 100 Interchange	St Thomas Drive to Harris Road	Pedestrian/Bicycle facilities on Road 100 from St Thomas Dr to Harris Road	$2,320,000
BP5	Pedestrian/Bicycle Access Road 68 Interchange	Chapel Hill Boulevard to Burden Boulevard	Pedestrian/Bicycle facility on Road 68 from Chapel Hill Blvd to Burden Blvd	$1,100,000
BP6	Sacajawea Heritage Trail Levee	Road 52 to Road 72	Lower the levee and install pathways for pedestrians from Road 52 to Road 72	$4,731,000
BP7	James Street Improvements	Oregon Avenue to Frontier Loop	Improve safety and pedestrian features and consolidate accesses	$1,220,000
BP8	Pedestrian/Bicycle Access Sylvester Street Overpass	32nd Avenue to 28th Avenue	Pedestrian/Bicycle facility on Sylvester Street from 32nd Avenue to 28th Avenue	$1,845,000
BP9	Lewis Street Corridor Improvements	N/A	Tie Lewis Street Overpass into other downtown improvements for safety and Pedestrian/Bicycle accessibility	$1,625,000
BP10	FCID Canal Pedestrian/ Bicycle Pathway Study	N/A	FCID Canal Pedestrian/Bicycle Pathway Study	$870,000
BP11	Court Street Road Reconfiguration	Road 40 to Road 68	Reconfigure Court Street to one lane in each direction and a center turn lane; stripe bike lanes in both directions	$270,000
BP12	Sylvester Street Road Reconfiguration	5th Avenue to Road 54	Reconfigure Sylvester Street to one lane in each direction and a center turn lane; stripe bike lanes in both directions	$1,630,000
BP13	20th Ave Road Reconfiguration	A Street to Argent Road	Reconfigure 20th Avenue to one lane in each direction and a center turn lane; install buffered bikes lanes in both directions. Additional improvements (e.g. right turn lanes) may be provided at intersections	$1,990,000
BP14	Court Street Sidewalk Infill	Road 40 to Road 68	Complete sidewalk infill as needed	$8,275,000
BP15	Sylvester Street Sidewalk Infill	5th Avenue to Road 54	Complete sidewalk infill as needed	$9,795,000
BP16	20th Ave Sidewalk Infill	A Street to Argent Road	Complete sidewalk infill as needed	$3,180,000

Summary of Recommended Improvements

The previous lists of recommended multimodal system improvements represent an investment of about $665 million, as summarized in Table 8 below. Most of the costs are associated with Roadway Extensions (EXT) and Widenings (EXP), which together total $575 million. It is noted that these improvement costs will be shared among the City of Pasco, the local development community, and other local transportation agency partners, including WSDOT and Franklin County. The city will be updating its Traffic Impact Fee (TIF) program in 2021 to address these system investments. The TIF is a one-time fee which helps build system improvements. It is collected from local development applicants at the time of new construction.

TABLE 8. SYSTEM IMPROVEMENT PROJECTS SUMMARY

ID	CATEGORY	NUMBER OF PROJECTS	DESCRIPTION	ESTIMATED COST (MILLIONS)
INT	Intersections	31	Intersection expansions, multimodal improvements and upgraded traffic controls	$42.8 M
EXT	Roadway Extension Projects	16	New streets to extend or replace existing roadways and overpasses	$375.1 M
TS/TR	Traffic Studies and Transit Amenities	5	Future traffic and concept planning to refine the scope and cost of improvements	$0.7 M
EXP	Roadway Widening Projects	40	Expand existing roadway cross-sections to add motor vehicle through and turning lanes to support growth	$206.0 M
BP	Bicycle and Pedestrian Projects	16	Dedicated projects to enhance and connect the citywide system for walking and bicycling	$40.7 M
TOTAL		**108**		**$665.3 M**

CHAPTER 4

Transportation System Standards

THIS CHAPTER PROVIDES AN OVERVIEW OF THE TRANSPORTATION SYSTEM STANDARDS ADOPTED AS PART OF THE PASCO TRANSPORTATION SYSTEM MASTER PLAN. TOGETHER, THESE STANDARDS WILL HELP ENSURE FUTURE FACILITIES ARE DESIGNED APPROPRIATELY AND THAT ALL FACILITIES ARE MANAGED TO SERVE THEIR INTENDED PURPOSE.

The roadway functional classification system, special route designations, access spacing and mobility standards are also included in this chapter.

For a complete listing of the system standards including typical design standards for roadways, walkways and bikeways within the city, refer to Appendix C for Transportation System Standards memo.

Roadway Functional Classification

In Pasco, all roadways are proposed to be multimodal or "complete streets", with each street serving the needs of the various travel modes. Streets in the city will not all be designed the same. Pasco classifies the street system into a hierarchy organized by functional classification and street type (representative of their places). These classifications ensure that the streets reflect the neighborhood through which they pass, consisting of a scale and design appropriate to the character of the abutting properties and land uses. The classifications also provide for and balance the needs of all travel modes including pedestrians, bicyclists, transit riders, motor vehicles and freight. Within these street classifications, context sensitive designs may result in alternative cross-sections.

A city's street functional classification system is an important tool for managing the transportation system. It is based on a hierarchical system of roads in which streets of a higher classification, such as arterials, emphasize a higher level of mobility for through movements, while streets of a lower classification emphasize access to land uses.

Pasco currently has four functional classes:

1. **Principal Arterials** connect major activity centers as well as the interstate system. They provide limited access and are primarily intended to serve regional traffic movement.
2. **Minor Arterials** create direct connections through the city and can be found on the periphery of residential neighborhoods. They generally provide the primary connection to other Arterial or Collector Streets and access to larger developed areas and neighborhoods.
3. **Collectors** provide local traffic circulation throughout the city and serve to funnel traffic from the arterial street network to streets of the same or lower classification. They typically have minor access restrictions.
4. **Local Streets** provide local access and circulation for traffic, connect neighborhoods, and often function as through routes for pedestrians and bicyclists. Local Streets should maintain slow vehicle operating speeds while providing convenient access to multimodal travel.

The TSMP also introduced a new Neighborhood Collector functional classification to identify locations where local access needs should be balanced with enhanced pedestrian and bicycle amenities. These streets should maintain slow vehicle operating speeds to accommodate safe use by all modes and provide local neighborhood access.

Functional classification provides a helpful framework for managing the city's transportation system and supporting other standards summarized in the following sections, including connectivity, spacing, freight routes, cross-sections, and access management.

Table 9 lists the desired spacing of each facility type throughout Pasco to ensure a high level of connectivity. Figure 14 illustrates the desired spacing for the arterial and collector network. Deviations from these guidelines may be needed in locations where there are significant barriers, such as topography, rail lines, freeways, existing development, or the presence of natural areas.

TABLE 9. FACILITY SPACING GUIDELINES

FUNCTIONAL CLASSIFICATION	RECOMMENDED MAXIMUM SPACING[A]
PRINCIPAL ARTERIAL	1 to 2 miles
MINOR ARTERIAL	1 mile
COLLECTOR	½ mile
NEIGHBORHOOD COLLECTOR	¼ mile
LOCAL STREET	300–500 feet
BICYCLE AND PEDESTRIAN FACILITIES	300 feet

[A] *Recommended maximum spacing refers to distance between facilities with the same or higher functional classification. Deviations from the recommended maximum spacing are subject to approval by the City engineer.*

People walking and biking benefit the most from closely spaced facilities because their travel is most affected by variation in distance. By providing walking and biking facilities or accessways that are spaced no more than 300 feet apart, Pasco will support active transportation within and between its neighborhoods. These connections also support high quality access to transit.

The adopted reclassifications aim to create a consistent functional classification scheme and match a roadway's functional classification to their role in the transportation network. The existing road network was also reviewed to identify neighborhood collector routes. Neighborhood collectors were identified in locations where the functional classification map from the Pasco Comprehensive Plan previously identified two closely spaced, parallel collectors which serve similar land uses. Converting one of these routes to a neighborhood collector provides a classification that is more consistent with the actual use of the road and facilitates multimodal transportation. Neighborhood collectors were also designated on the local street system for routes which provide connections between several adjacent neighborhoods and the collector or arterial network.

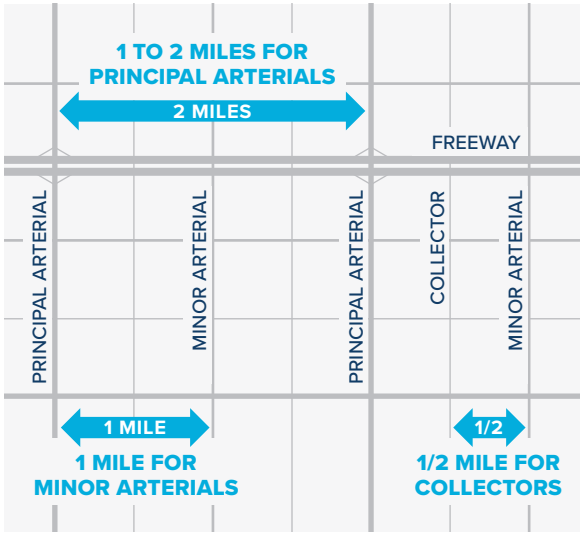


FIGURE 14. DESIRED FACILITY SPACING

The adopted reclassifications summarized in Figure 15 and Tables 10 and 11 will provide better system spacing and connectivity. It is important to note that many of the existing roadway cross-sections will not meet the standard cross-sections of their new functional classification. Cross-section improvements are not expected outside of redevelopment.

Note that Columbia River Road and Taylor Flats Road, north of Road 68, are classified as collectors, consistent with Franklin County's functional classification, even though Road 68 is classified as a principal arterial. These designations will be consistent for both roadways as they continue further north in rural Franklin County. Also, the easterly end of Burns Road, also called Powerline Road, is indicated with a possible easterly extension that crosses over the rail yard and eventually connects to US 395 north of Foster Wells Road. This is an illustrative concept of how east-west principal arterial level connections could be made north of I-182 to provide an alternative regional route. However, this connection is not included in the project list of the TSMP, and has not been assumed in the 2040 horizon year system.

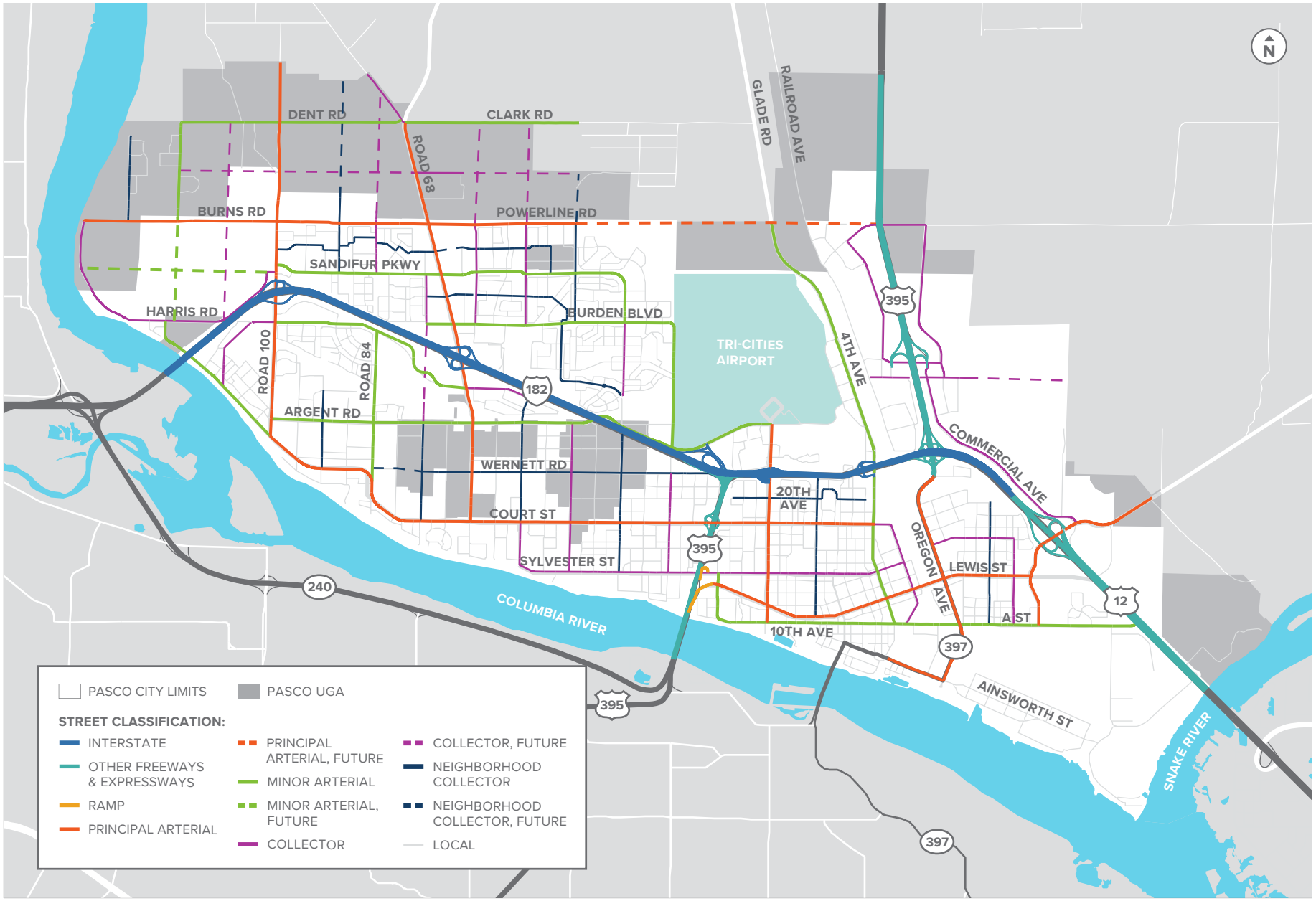


FIGURE 15. RECOMMENDED ROADWAY FUNCTIONAL CLASSIFICATION

TABLE 10. FUNCTIONAL CLASSIFICATION OF NEW ROADWAYS

ROADWAY	EXTENTS	RECOMMENDED FUNCTIONAL CLASSIFICATION
SANDIFUR PARKWAY EXTENSION	Road 100 to New North-South Collector	Principal Arterial
DENT ROAD EXTENSION	Burns Road to Harris Road	Minor Arterial
SANDIFUR PARKWAY EXTENSION	New North-South Collector to Shoreline Drive	Minor Arterial
SANDIFUR PARKWAY EXTENSION	New North-South Collector to Shoreline Drive	Collector
NEW NORTH-SOUTH COLLECTOR	Dent Road to Harris Road	Collector
ROAD 84 EXTENSION	Burns Road to Columbia River Road	Collector
CONVENTION DRIVE EXTENSION	Burns Road to Clark Road	Collector
ROAD 60 EXTENSION	Burns Road to Clark Road	Collector
DESERET DRIVE	Dent Road to Road 52	Collector
ROAD 76 EXTENSION	Burden Boulevard to Argent Road	Collector
ROAD 90 EXTENSION	Burns Road to UGA	Neighborhood Collector
THREE RIVERS DRIVE EXTENSION	Road 68 to Rio Grande Lane	Neighborhood Collector
WRIGLEY DRIVE EXTENSION	Clemente Lane to Road 68 Place	Neighborhood Collector
ROAD 52 EXTENSION	Burns Road Deseret Drive	Neighborhood Collector
WERNETT ROAD EXTENSION	Road 76 to Road 84	Neighborhood Collector

TABLE 11. ROADWAY FUNCTIONAL CLASSIFICATION CHANGES

EXISTING FUNCTIONAL CLASSIFICATION	ROADWAY	EXTENTS	RECOMMENDED FUNCTIONAL CLASSIFICATION
MINOR ARTERIAL	Road 100	Dent Road to UGA	Principal Arterial
MINOR ARTERIAL	20th Avenue	Lewis Street to A Street	Principal Arterial
PRINCIPAL ARTERIAL	10th Avenue	Ainsworth Street to A street	Minor Arterial
PRINCIPAL ARTERIAL	4th Avenue	A Street to I-182 Westbound Ramp Terminal	Minor Arterial
COLLECTOR	Court Street	Road 100 to Harris Road	Minor Arterial
COLLECTOR	Harris Road	Court Street to Dent Road Extension	Minor Arterial
COLLECTOR	Dent Road	Burns Road to Road 68	Minor Arterial
COLLECTOR	Clark Road	Road 68 to Road 52	Minor Arterial
COLLECTOR	Chapel Hill Boulevard	Road 82 to Road 68	Minor Arterial
COLLECTOR	A Street	20th Avenue to 28th Avenue	Minor Arterial
COLLECTOR	28th Avenue	A Street to Sylvester street	minor arterial
MINOR ARTERIAL	Chapel Hill Boulevard	Crescent Road to Road 100	Collector
MINOR ARTERIAL	Road 60	Court Street to Sylvester Street	Collector
MINOR ARTERIAL	Sylvester Street	Road 60 to 4th Avenue	Collector
MINOR ARTERIAL	Court Street	4th Avenue to 1st Avenue	Collector
MINOR ARTERIAL	1st Avenue	Court Street to A Street	Collector
LOCAL	Broadway Street	Wehe Avenue to Cedar Avenue	Collector
LOCAL	Cedar Avenue	Broadway Street to Lewis Street	Collector
LOCAL	Commercial Avenue	Kartchner Street to Hillsboro Road	Collector
MINOR ARTERIAL	Road 90	Sandifur Parkway to Burns Road	Neighborhood Collector
COLLECTOR	Wernett Road	Road 36 To Road 76	Neighborhood Collector
COLLECTOR	14th Avenue	Lewis Street to Court Street	Neighborhood Collector
COLLECTOR	Saratoga Lane	Chapel Hill boulevard to Argent Road	Neighborhood Collector
COLLECTOR	Road 44	Argent Road to Madison Avenue	Neighborhood Collector
COLLECTOR	Madison Avenue	Road 44 to Burden Boulevard	Neighborhood Collector

EXISTING FUNCTIONAL CLASSIFICATION	ROADWAY	EXTENTS	RECOMMENDED FUNCTIONAL CLASSIFICATION
COLLECTOR	Road 52	Burden Boulevard to Burns Road	Neighborhood Collector
COLLECTOR	Wrigley Drive	Road 76 to Clemente Lane	Neighborhood Collector
LOCAL	Kohler Road	Dent Road to Hillcrest Drive	Neighborhood Collector
LOCAL	Road 92	Court Street to Maple Drive	Neighborhood Collector
LOCAL	Road 76	Argent Road to Court Street	Neighborhood Collector
LOCAL	Road 60	Argent Road to Court Street	Neighborhood Collector
LOCAL	Road 48	Argent Road to Sylvester Street	Neighborhood Collector
LOCAL	Wernett Road	Road 36 to Road 30	Neighborhood Collector
LOCAL	14th Avenue	Court Street to Lincoln Drive	Neighborhood Collector
LOCAL	Pearl Street	24th Avenue to 13th Avenue & 10th Avenue to 5th Avenue	Neighborhood Collector
LOCAL	13th Avenue	Pearl Street to Riverview Drive	Neighborhood Collector
LOCAL	Riverview Drive	13th Avenue to 12th Avenue	Neighborhood Collector
LOCAL	10th Avenue	12th Avenue to Pearl Street	Neighborhood Collector
LOCAL	Elm Avenue	A Street to Shepperd Street	Neighborhood Collector
LOCAL	Wrigley Drive	Road 68 Place to Roosevelt Drive	Neighborhood Collector
LOCAL	Roosevelt Drive	Wrigley Drive to Madison Avenue	Neighborhood Collector
LOCAL	Madison Avenue	Roosevelt Drive to Burden Boulevard	Neighborhood Collector
LOCAL	Vincenzo Drive	Road 100 to Majestia Lane	Neighborhood Collector
LOCAL	Majestia Lane	Vincenzo Drive to Road 90	Neighborhood Collector
LOCAL	Road 90	Sandifur Parkway to Burns Road	Neighborhood Collector
LOCAL	Wilshire Drive	Road 90 to Westmoreland Lane	Neighborhood Collector
LOCAL	Westmoreland Lane	Wilshire Drive to Overland Court	Neighborhood Collector
LOCAL	Overland Court	Westmoreland Lane to Westminster Lane	Neighborhood Collector
LOCAL	Westminster Lane	Overland Court to Stutz Drive	Neighborhood Collector
LOCAL	Stutz Drive	Westminster Lane to Road 84	Neighborhood Collector

EXISTING FUNCTIONAL CLASSIFICATION	ROADWAY	EXTENTS	RECOMMENDED FUNCTIONAL CLASSIFICATION
LOCAL	Hudson Drive	Road 84 to Okanogan Lane	Neighborhood Collector
LOCAL	Okanogan Lane	Hudson Drive to Chehalis Drive	Neighborhood Collector
LOCAL	Chehalis Drive	Okanogan Lane to Three Rivers Drive	Neighborhood Collector
LOCAL	Three Rivers Drive	Chehalis Drive to Road 68 & Rio Grande Lane to Road 56	Neighborhood Collector
LOCAL	Road 56	Three Rivers Drive to Overton Road	Neighborhood Collector
LOCAL	Overton Road	Road 56 to Road 52	Neighborhood Collector

Freight Network

Freight routes play a vital role in the economical movement of raw materials and finished products, while maintaining neighborhood livability, public safety, and minimizing maintenance costs of the roadway system. The Washington State Freight and Goods Transportation System (FGTS) tonnage classification system identifies different categories of freight corridors based on annual freight tonnage moved (refer to Figure 16). The freight corridors in Pasco are as follows:

- I-182
- US 12
- US 395
- WA 397
- Road 100 (I-182 to Harris Road)
- Road 68 (I-182 to Clark Road)
- 4th Avenue (I-182 to Glade Road)
- Ainsworth Avenue/Dock Street (WA 397 to Sacajawea Park Road)
- Harris Road (Road 100 to Shoreline Road)
- Shoreline Road (Harris Road to Burns Road)
- Burns Road (Shoreline Road to Dent Road)
- Dent Road (Burns Road to Road 68)
- Clark Road (Road 68 to Glad Road)
- Taylor Flats Road (North of Road 68)
- Columbia River Road (North of Road 68)
- Glade Road (North of 4th Avenue)
- Railroad Avenue (North of Hillsboro Street)
- Foster Wells Road (East of US 395)
- Kartchner Street (Railroad Avenue to Commercial Avenue)
- Hillsboro Street (Railroad Avenue to Travel Plaza Way)
- Lewis Street (US 395 to 20th Avenue)
- 20th Avenue (Lewis Street to A Street)
- A Street (20th Avenue to US 12)
- Pasco Kahlotus Road (East of US 12)
- Lewis Street (WA 397 to US 12)
- 4th Avenue (Ainsworth Street to A Street)

Other critical freight corridors that are not currently included in the Washington FGTS include Sacajawea Park Road from Ainsworth Avenue to US 12 and Commercial Avenue from Lewis Street to Kartchner Street. Including these routes in a future update to the Washington FGTS will recognize their significance to Pasco's freight system and connect key industrial areas to existing FGTS corridors.

The city's freight transportation system also includes a rail yard, port, and the Tri-Cities Airport. Intermodal connections between these freight hubs, Pasco's industrial areas, and the Tri-Cities region are necessary to support the movement of goods. Primary routes serving these existing freight transportation needs are identified through the Washington FGTS although additional development in these areas could generate new freight traffic demands.

Pasco will benefit from ensuring that its freight routes are designed to accommodate the needs of its industrial and commercial areas, while protecting its residential neighborhoods from freight traffic. Having designated freight routes will help the city better coordinate and improve its efforts regarding both freight and non-freight transportation system users, including the following:

- **Roadway and Intersection Improvements** can be designed for freight vehicles with adjustments for turn radii, sight distance, lane width and turn pocket lengths.
- **Bicycle and Pedestrian Improvements**—such as protected or separated bike facilities, enhanced pedestrian crossings, and other safety improvements—can be identified to reduce freight impacts to other users, particularly along bikeways and walkways.
- **Roadway Durability** can be increased by using concrete instead of asphalt for the pavement surface.
- **Railroad Connections** can be coordinated to support businesses that ship goods by rail, particularly in areas where railroad sidings can be provided.
- **Coordination with Businesses and Adjacent Jurisdictions** can ensure that local and regional freight traffic uses Pasco's freight routes to travel within the city.

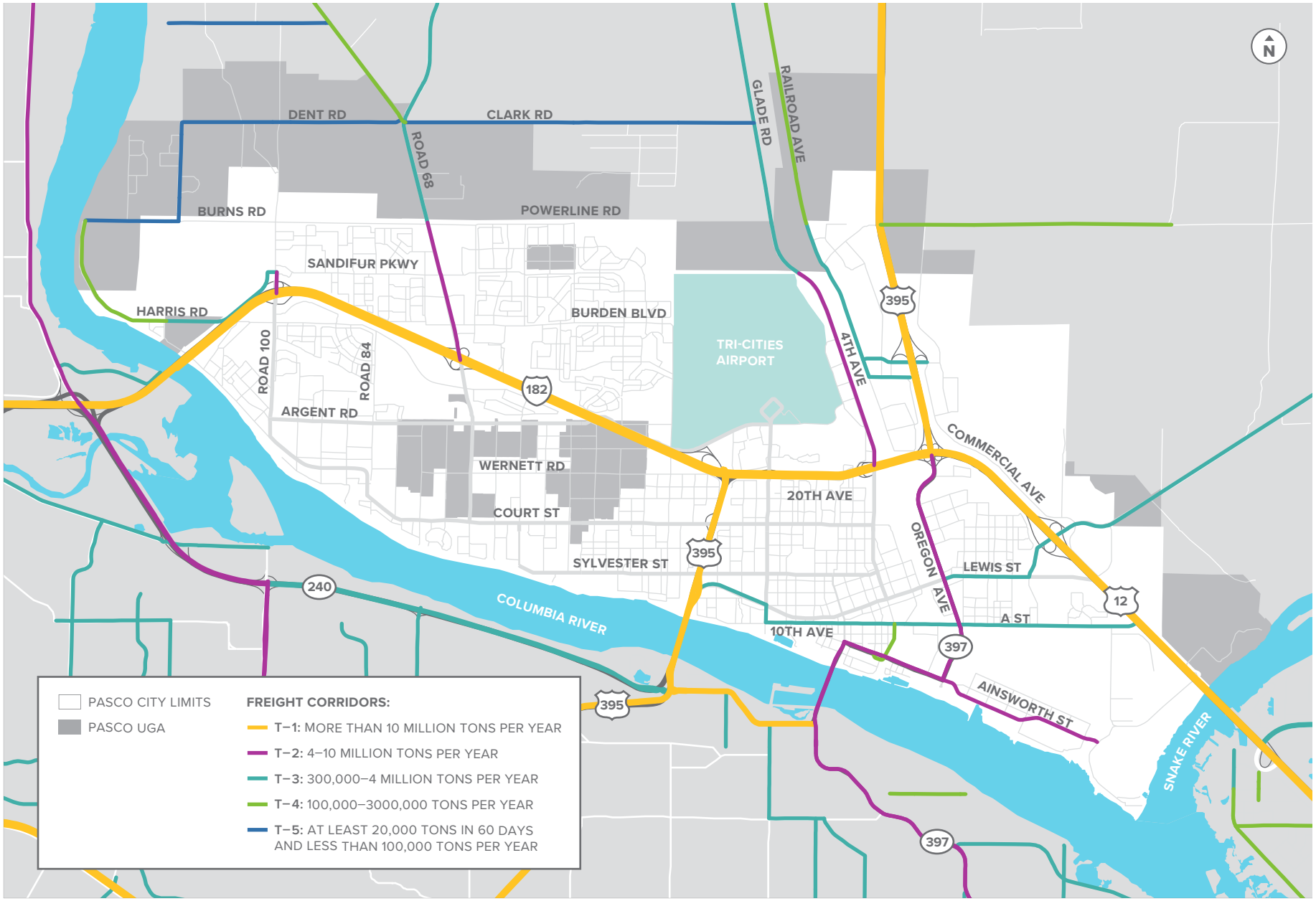


FIGURE 16. FREIGHT SYSTEM

Neighborhood Traffic Management Tools

Neighborhood Traffic Management (NTM) involves strategies to slow traffic, and potentially reduce volumes, creating a more inviting environment for pedestrians and bicyclists. NTM strategies focus on neighborhood livability on local streets, though a few can apply to collectors and arterials, such as raised median islands. Mitigation measures balance the need to manage vehicle speeds and volumes with the need to maintain mobility, circulation, and function for service providers, such as emergency responders. Examples of tools are shown in Figure 17.

Table 12 lists common NTM applications. Any NTM project should include coordination with emergency response staff to ensure that public safety is not compromised. NTM strategies implemented on a state facility would require coordination with WSDOT regarding freight mobility considerations.

FIGURE 17. SUMMARY OF NEIGHBORHOOD TRAFFIC MANAGEMENT STRATEGIES

Photo Sources: Chicanes, Chokers, Median Islands, and Speed Hump > www.pedbikeimages.org/Dan Burden; Curb Extensions and Traffic Circles > www.pedbikeimages.org/Carl Sundstrom; Diverters > www.pedbikeimages.org/Adam Fukushima; Raised Crosswalks > www.pedbikeimages.org/Tom Harned; Speed Cushions > NACTO Urban Street Design Guide.

TABLE 12. APPLICATION OF NEIGHBORHOOD TRAFFIC MANAGEMENT STRATEGIES

NEIGHBORHOOD TRAFFIC MANAGEMENT APPLICATION	USE BY FUNCTION CLASSIFICATION			IMPACT	
	ARTERIALS	COLLECTORS	LOCAL STREETS	SPEED REDUCTION	TRAFFIC DIVERSION
CHICANES			●	●	●
CHOKERS			●	●	●
CURB EXTENSIONS	●	●	●	●	
DIVERTERS (WITH EMERGENCY VEHICLE PASS-THROUGH)		●	●		●
MEDIAN ISLANDS	●	●	●	●	
RAISED CROSSWALKS			●	●	●
SPEED CUSHIONS (WITH EMERGENCY VEHICLE PASS-THROUGH)			●	●	●
SPEED HUMP			●	●	●
TRAFFIC CIRCLES			●	●	●

The City of Pasco does not currently have a formal neighborhood traffic management program. Suggested elements can include:

- Provide a formalized process for citizens who are concerned about the traffic or safety on their neighborhood street. The process could include filing a citizen request with petition signatures and a preliminary evaluation. If the evaluation finds cause for concern, a neighborhood meeting would be held and formal data would be collected and evaluated. If a problem were found to exist, solutions would be identified and the process continued with neighborhood meetings, feedback from service and maintenance providers, cost evaluation, and traffic calming device implementation. Six months after implementation the device would be evaluated for effectiveness.
- For land use proposals, in addition to assessing impacts to the entire transportation network, traffic studies for new developments must also assess impacts to residential streets. A recommended threshold to determine if this additional analysis is needed is if the proposed project increases through traffic on residential streets by 40 or more vehicles during the evening peak hour or 200 vehicles per day. Once the analysis is performed, the threshold used to determine if residential streets are impacted would be if their daily traffic volume exceeds 1,800 vehicles.

NEIGHBORHOOD TRAFFIC MANAGEMENT STRATEGIES IMPROVE NEIGHBORHOOD LIVABILITY ON LOCAL STREETS, CREATING A MORE INVITING ENVIRONMENT FOR PEDESTRIANS AND BICYCLISTS.

Access Management & Street Connectivity Standards

Access management provides safe and efficient access to the transportation system for all users. Historically, the City of Pasco only managed access through restrictions on the placement of driveways. New residential driveways must be located 25 feet from an existing intersection, while new commercial driveways must be placed in coordination with the Public Works Director.[4] Expanded access management spacing standards which account for the different roadway functional classifications are adopted for the City of Pasco as part of the TMSP to better manage driveway construction. These standards are summarized in Table 13.

In addition to these access spacing standards, it is recommended that the city consider guidelines to enhance the system connectivity within the new neighborhoods to better balance access for all system users. As noted in previous sections of the TSMP, the public feedback during the open house events highlighted the challenges of navigating the city outside of a motor vehicle. Walking and biking and access to transit are significantly benefited by constructing neighborhoods with greater connectivity through better street and walkway spacing, and more direct routes to key destinations, such as schools, parks and transit stops. Today, the city does not provide this type of guidance, and new neighborhood circulation plans are left to the development applicants to decide.

TABLE 13. ACCESS MANAGEMENT SPACING STANDARDS

SPACING GUIDELINES[A, B]	PRINCIPAL ARTERIALS	MINOR ARTERIALS	COLLECTORS	NEIGHBORHOOD COLLECTORS	LOCAL STREETS
MINIMUM DRIVEWAY SPACING (DRIVEWAY TO DRIVEWAY)[B]	300 feet	250 feet	150 feet	75 feet	N/A
MINIMUM FULL-ACCESS DRIVEWAY SPACING (SETBACK FROM INTERSECTION)	300 feet[C]	250 feet	150 feet	75 feet	25 feet
MINIMUM RIGHT-IN/ RIGHT-OUT DRIVEWAY SPACING (SETBACK FROM INTERSECTION)	150 feet[C]	125 feet	75 feet	50 feet	25 feet

[A] *All distances measured from the edge of adjacent approaches.*

[B] *A property must construct access to a lower classified roadway, where possible.*

[C] *WSDOT requires 1,320 between an interchange and the closest driveway. (Source: State of Washington. Washington Administrative Code Section 468-52-040 Access Control Classification System and Standards. https://app.leg.wa.gov/wac/default.aspx?cite=468-52-040)*

4 *City of Pasco. Pasco Municipal Code Section 12.04.100 Driveway Standards. https://pasco.municipal.codes/PMC/12.04.090*

It is important to balance the economic objectives of a land developer with the community values of its future residents. City standards help to assure that the shape of the resulting walking, biking and travel systems will provide a framework for new neighborhoods to thrive in the long-term, since it plays a fundamental role in defining the character of that community for generations to come.

Specifically, it is recommended to apply new guidelines for the maximum block length, block size, block perimeter and access spacing as summarized in Table 14. Under this new guidance for most zoning designations, block lengths shall not exceed 660 feet and the block perimeter shall not exceed 1,760 feet. Previously blocks could not exceed 1,320 feet for residential uses or 600 feet for commercial uses.[5] The recommended complete street connectivity standards plus guidelines are summarized below in Table 14. To enact these recommended street spacing and connectivity changes, the city must conduct a public hearing and the city council must adopt them to become a part of the municipal code.

TABLE 14. RECOMMENDED STREET CONNECTIVITY STANDARDS

SPACING GUIDELINES	PRINCIPAL ARTERIALS	MINOR ARTERIALS	COLLECTORS	NEIGHBORHOOD COLLECTORS	LOCAL STREETS
MAXIMUM BLOCK SIZE (PUBLIC STREET TO PUBLIC STREET)	660 feet	660 feet	660 feet	660 feet	660 feet
MINIMUM BLOCK SIZE (PUBLIC STREET TO PUBLIC STREET)	300 feet	250 feet	200 feet	150 feet	125 feet
MAXIMUM BLOCK PERIMETER	1,760 feet	1,760 feet	1,760 feet	1,760 feet	1,760 feet
MAXIMUM DISTANCE BETWEEN PEDESTRIAN/ BICYCLE ACCESSWAYS[A]	330 feet	330 feet	330 feet	330 feet	330 feet

[A] *Spacing is the maximum of public street to public street, public street to accessway, or accessway to accessway distance.*

5 *City of Pasco. Street Connectivity – Supplemental Memorandum for CA2019-013. September 17, 2020.*

Vehicle Mobility Targets

For the motor vehicle system, the city applies a list of performance targets to track how well the system works. These mobility targets are used in long-range planning and development review to identify deficiencies on the transportation network and can be used to identify needed improvements as growth occurs.

TWO COMMON METHODS USED TO GAUGE TRAFFIC OPERATIONS FOR MOTOR VEHICLES ARE:

VOLUME-TO-CAPACITY (V/C) RATIO

A v/c ratio is a decimal representation (between 0.00 and 1.00) of the proportion of capacity that is being used at a turn movement, approach leg, or intersection. The ratio is the peak hour traffic volume divided by the hourly capacity of a given intersection or movement. A lower ratio indicates smooth operations and minimal delays. A ratio approaching 1.00 indicates increased congestion and reduced performance.

LEVEL OF SERVICE (LOS)

LOS is a "report card" rating (A through F) based on the average delay experienced by vehicles at the intersection. LOS A, B, and C indicate conditions where traffic moves without significant delays over periods of peak hour travel demand. LOS D and E are progressively worse operating conditions. LOS F represents conditions where average vehicle delay is excessive, and demand exceeds capacity, typically resulting in long queues and delays.

Mobility targets are adopted by the City of Pasco in their comprehensive plan. The City of Pasco uses a Level of Service (LOS) standard which evaluates the average delay at signalized and unsignalized intersections. This calculation is made by using a national methodology for assessing intersection performance, as published in the Highway Capacity Manual (HCM). The current mobility targets, which apply to the weekday peak hour, are summarized below in Table 15. The City requires a lower level of service for arterial and collector roadways where higher traffic leads to higher delays. The arterial and collector standards are consistent with the mobility targets applied by BFCG and WSDOT.

TABLE 15. REXISTING MOBILITY TARGETS FOR WEEKDAY PEAK HOUR PERIODS

FUNCTIONAL CLASSIFIATION	MOBILITY TARGET
LOCAL STREETS	Level of Service C
ARTERIALS AND COLLECTORS	Level of Service D
WSDOT FACILITIES	Level of Service D

Typically, these LOS targets are applied at individual intersections. It is recommended that these targets be modified to account for the type of traffic controls being applied at each intersection, since the impact of delay differs between signals, roundabouts and stop sign controlled locations. In addition, it is recommended that another metric be added, the Volume-to-Capacity (v/c) Ratio, which measures how close to capacity a location operates at a given time of day. Using both a LOS (delay-based) and v/c (congestion-based) standard which can be helpful in situations where one metric may not be enough, such as an all-way stop where one approach is over capacity, but overall intersection delay meets standards. Each of these metrics is readily calculated by applying the appropriate HCM methods. Table 16 summarizes recommended changes to Pasco's mobility targets. Also noted is the current target used for WSDOT intersections, which will remain at Level of Service D for all cases.

TABLE 16. RECOMMENDED MOBILITY TARGETS

TRAFFIC CONTROL TYPE	MOBILITY TARGETS	APPLICABLE ELEMENT
SIGNALIZED	Level of Service D and Volume-to-Capacity Ratio ≤0.90	Average for all vehicles using the intersection
ALL-WAY STOP OR ROUNDABOUTS	Level of Service D and Volume-to-Capacity Ratio ≤0.90	Worst Approach
TWO-WAY STOP[A]	Level of Service E and Volume-to-Capacity Ratio ≤0.95	Worst Major Approach/ Worst Minor Approach
WSDOT INTERSECTIONS	Level of Service D	Intersection or Worst Approach depending on control type

[A] Applies to approaches that serve more than 20 vehicles; there is no standard for approaches serving lower volumes.

Demand Management Policies

Pasco experiences peak congestion due to single-occupant trips during peak demand times. Transportation Demand Management (TDM) aims to remove single occupant motor vehicle trips from the roadway network during peak travel demand periods which could provide one avenue for reducing pressure on key facilities. Changing users' travel behavior and providing alternative choices will help accommodate the expected growth in travel demand identified for Pasco.

Generally, TDM focuses on reducing vehicle miles traveled for large employers by promoting active and shared modes of travel. Research has shown that a comprehensive set of complementary policies implemented over a large geographic area can affect the number of vehicle miles traveled to/from that area. For TDM measures to be effective, strategies should go beyond the low-cost, uncontroversial measures commonly used such as carpooling, transportation coordinators/associations, and priority parking spaces.

EFFECTIVE TDM STRATEGIES INCLUDE:

- Supporting alternative vehicle types by identifying potential electric vehicle plug-in stations and developing and implementing code provisions.
- Encouraging/supporting rideshare/vanpool to major employers in Benton or Franklin County and Kennewick or Richland (e.g. Hanford Nuclear Site) for employees living in Pasco.
- Establishing site development standards that require pedestrian and bicycle access through sites and connections to adjacent sites and transportation facilities, to the extent the development impacts existing access.
- Improving amenities and access for transit stops. Actions could include instituting site design requirements allowing redevelopment of parking areas for transit amenities; requiring safe and direct pedestrian connections to transit; and permitting transit-supportive uses outright in commercial and institutional zones.
- Improving street connectivity to support direct connections between residential areas and activity centers.
- Investing in pedestrian/bicycle facilities.

Effective TDM measures include parking strategies (limiting or increasing supply in strategic locations), improved services for alternative modes of travel, and market-based incentives to encourage travel behavior changes. TDM ican also include a variety of actions that are tailored to the specific needs of an area.

Opportunities to expand TDM and other measures in Pasco include developing requirements for long-term bicycle parking for places of employment above a certain size, park-and-ride facilities, major transit stops, and multi-family residential developments. Other land uses, especially activity generators, should be required to provide short-term bike parking and are encouraged to implement the long-term options. Long-term bicycle parking options include:

- Individual lockers for one or two bicycles
- Racks in an enclosed, lockable room
- Racks in an area that is monitored by security cameras or guards (within 100 feet)
- Racks or lockers in an area always visible to employees

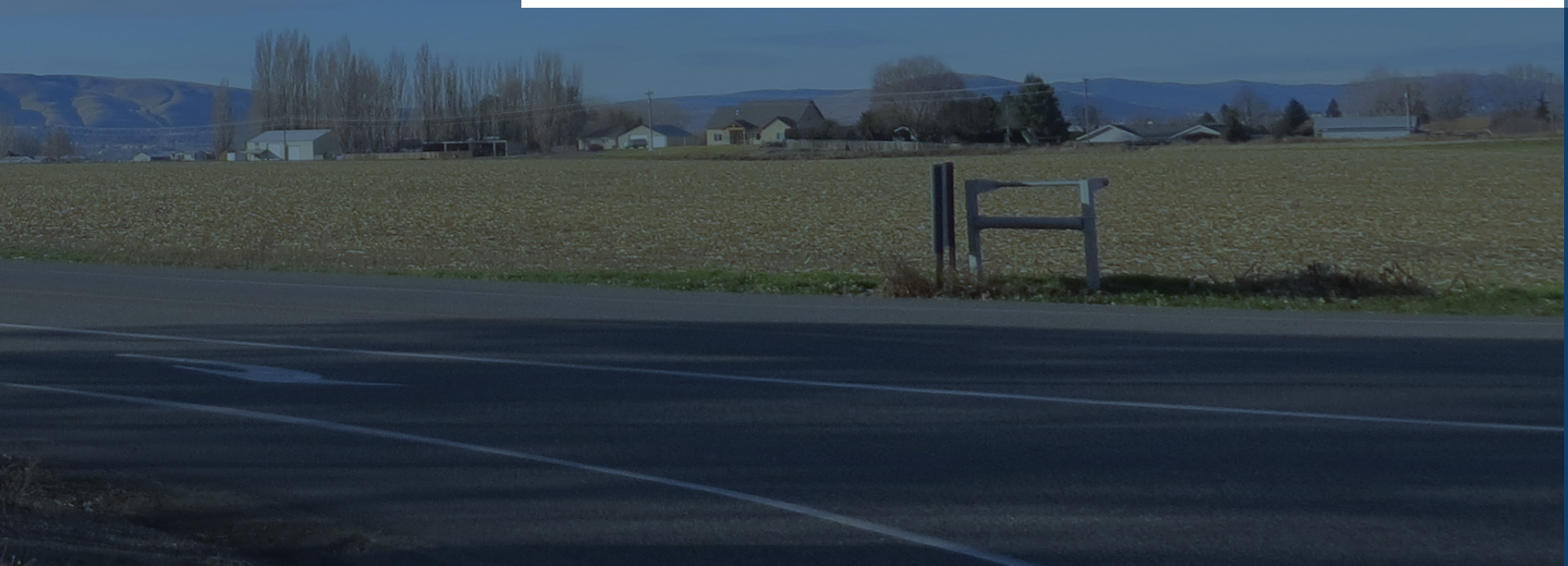
CITY OF PASCO

Transportation System Master Plan **Appendices**

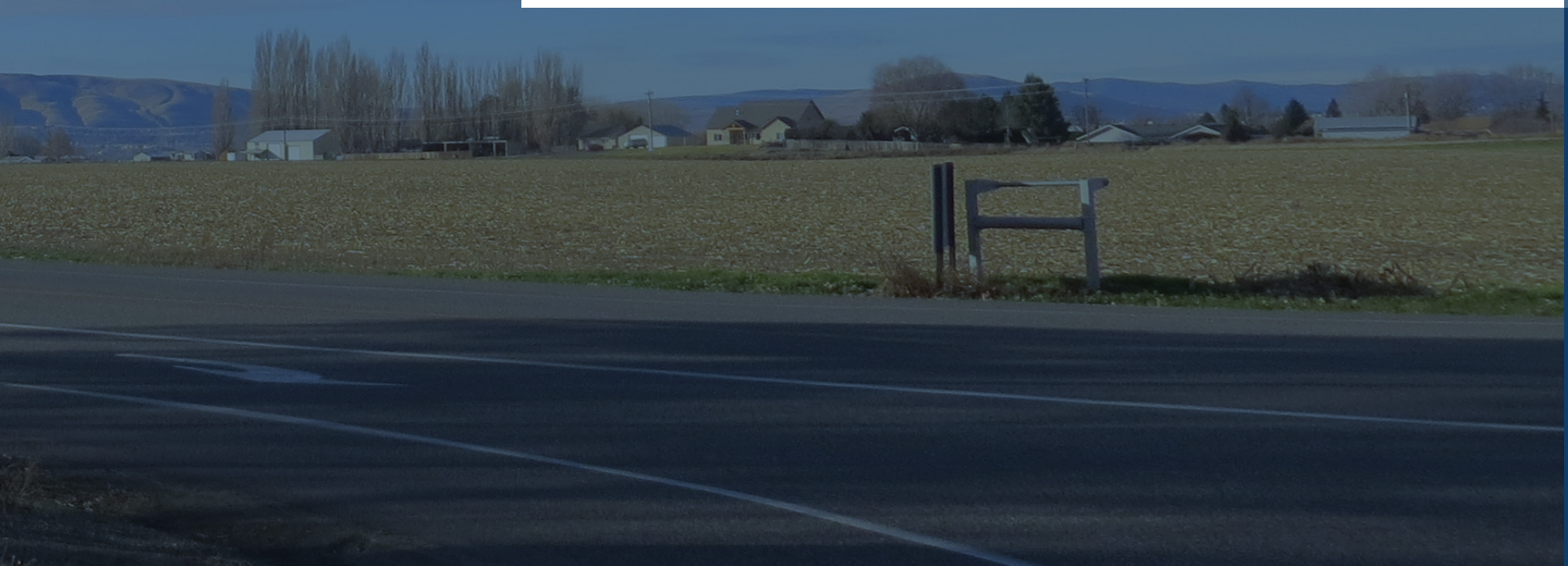
OCTOBER 2021

City of Pasco Washington

Appendix A



Appendix B



Appendix C